

UCD LIBRARY



178-72


 PHYSICAL
SCIENCE
LIBRARY

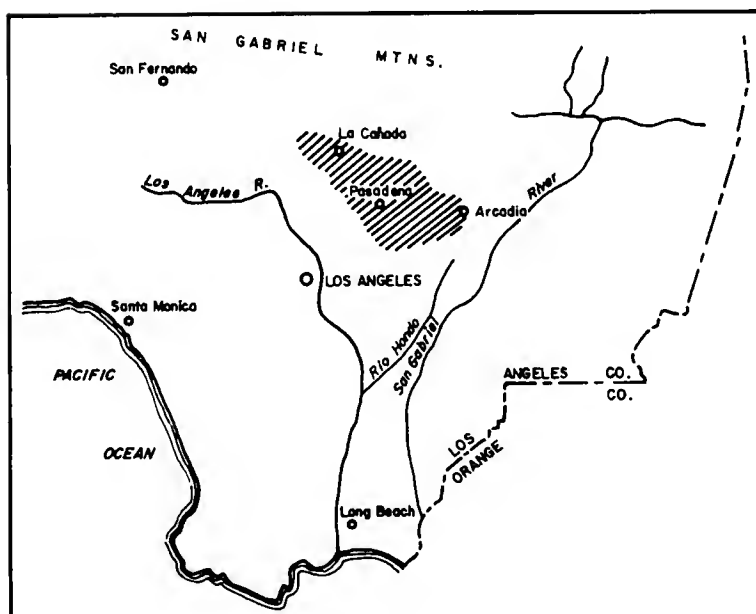
STATE OF CALIFORNIA

The Resources Agency

Department of Water Resources

BULLETIN No. 178-72

WATERMASTER SERVICE
IN THE
RAYMOND BASIN
LOS ANGELES COUNTY



FOR PERIOD
JULY 1, 1971
THROUGH
JUNE 30, 1972

 UNIVERSITY OF CALIFORNIA
DAVIS

SEP 14 1972

GOV'T. DOCS. - LIBRARY

AUGUST 1972

NORMAN B. LIVERMORE, JR.
Secretary for Resources
The Resources Agency

RONALD REAGAN
Governor
State of California

WILLIAM R. GIANELLI
Director
Department of Water Resources

 JUN 5 1977
SEP 8 1977 REC'D

STATE OF CALIFORNIA
The Resources Agency
Department of Water Resources

BULLETIN No. 178-72

WATERMASTER SERVICE
IN THE
RAYMOND BASIN
LOS ANGELES COUNTY

FOR PERIOD
JULY 1, 1971 THROUGH JUNE 30, 1972

AUGUST 1972

NORMAN B. LIVERMORE, JR.
Secretary for Resources
The Resources Agency

RONALD REAGAN
Governor
State of California

WILLIAM R. GIANELLI
Director
Department of Water Resources

ABSTRACT

Below normal precipitation and runoff prevailed throughout the entire Raymond Basin area during the 1971-72 water year. As expected, water levels in the vicinity of Arroyo Seco spreading grounds and in the Eastern Unit decreased. No water rights were permanently transferred during the year; however, 45 acre-feet were temporarily transferred in the Exchange Pool. Basin management studies by means of the mathematical model have continued.

| Item | 1970-71 Fiscal Year | 1971-72 Fiscal Year | Percent of change from previous fiscal year |
|--|------------------------|------------------------|--|
| Parties, number of | 21 | 21 | 0 |
| Active pumpers, number of | 21 | 21 | 0 |
| Active nonparties, number of | 2 | 2 | 0 |
| Watermaster expenses | \$ 29,113.84 | \$ 26,739.87 | - 8 |
| Watermaster expenses, per acre-foot pumped | \$ 0.94 | 0.87 | - 7 |
| Valley rainfall, in inches | 17.44 | 8.35 | - 52 |
| Runoff, in acre-feet | | | |
| Inflow | 8,315 | 5,408 | - 35 |
| Outflow | 14,838 | 6,599 | - 56 |
| Spreading operation, in acre-feet | 2,807 | 1,217 | - 57 |
| "Decreed Right 1955", in acre-feet | 30,622 | 30,622 | 0 |
| Extractions inside basin, in acre-feet | 30,990 | 30,561 | - 1 |
| Diversions, in acre-feet | 5,140 | 2,473 | - 52 |
| Imports, in acre-feet | 26,843 | 30,913 | + 15 |
| Exports, in acre-feet | <u>-11,272</u> | <u>- 9,528</u> | <u>- 15</u> |
| Net Water Use, in acre-feet | 51,701 | 54,419 | + 5 |

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES

Ronald Reagan, Governor
Norman B. Livermore, Jr., Secretary for Resources
William R. Gianelli, Director, Department of Water Resources
John R. Teerink, Deputy Director

SOUTHERN DISTRICT

James J. Doody District Engineer and Watermaster
Mitchell L. Gould Chief, Operations Branch and Deputy Watermaster

Watermaster service in this area was conducted
and report prepared under the direction

of

Clyde B. Arnold Chief, Contracts Administration Section

by

Carlos Madrid Deputy Watermaster

assisted by

Gabriel V. Valenzuela Water Resources Engineering Associate
Cesar M. Garma Assistant Civil Engineer
Raymond D. Woo Water Resources Technician II
William H. McCann Water Resources Technician II
Allen M. McDonagh Water Resources Technician I
John Stanley Water Resources Technician I
Pete Fielding Engineering Aid II
Larry S. Brudner Clerk II

FOREWORD

The Watermaster presents this annual report as a comprehensive review of water conditions in the Raymond Basin during the past fiscal year. It was prepared for the Superior Court, County of Los Angeles, and for the parties to that certain Judgment made and entered December 23, 1944, in the Superior Court of the State of California in and for the County of Los Angeles. The action is identified as Case No. Pasadena C-1323, entitled "City of Pasadena, a municipal corporation, Plaintiff, vs. City of Alhambra, a municipal corporation et al, Defendants".

The Raymond Basin, established as a watermaster service area under Part 4, Division 2, of the California Water Code, is monitored by the California Department of Water Resources. The basin has been operated for several years under a well-defined management plan, one phase of which limits ground water extractions.

This report covers the scope of the Watermaster's work, conditions of ground water supply, water use, ground water replenishment, variations from guidelines in the Judgment, and a complete financial report for the past fiscal year.



James J. Doody
District Engineer
Southern District
and Watermaster
Reg. C. E. No. 6500

CONTENTS

| | <u>Page</u> |
|--|-------------|
| ABSTRACT | 2 |
| ORGANIZATION | 2 |
| FOREWORD | 3 |
| I. THE RAYMOND BASIN | 7 |
| Activities of the Watermaster | 7 |
| II. WATER SUPPLY | 9 |
| Precipitation | 9 |
| Ground Water Recharge | 11 |
| Salvage Credit for City of Sierra Madre | 11 |
| Runoff | 13 |
| Ground Water Elevations | 14 |
| Water Well Numbering in the Raymond Basin | 19 |
| III. WATER USE | 23 |
| Ground Water Extractions | 23 |
| Surface Water Diversion | 23 |
| Use of Imported Water | 23 |
| Ground Water Exports | 23 |
| Nonparty Ground Water Extraction | 25 |
| Exports of Sewage | 26 |
| IV. ADMINISTRATION OF THE JUDGMENT | 27 |
| Exchange Pool | 27 |
| Annual Variation in Extraction | 29 |
| Five-Year Variation in Extraction | 29 |
| Variations from Safe Yield | 29 |
| V. ADMINISTRATIVE COSTS | 31 |
| Costs of Determining Salvage Credit for City of Sierra Madre | 32 |
| APPENDIXES | |
| A: Mean Daily Discharge at Surface Runoff Stations Operated by the Watermaster, 1971-72 Watermaster Year | 33 |
| B: Ground Water Extraction Data for Individual Wells | 39 |

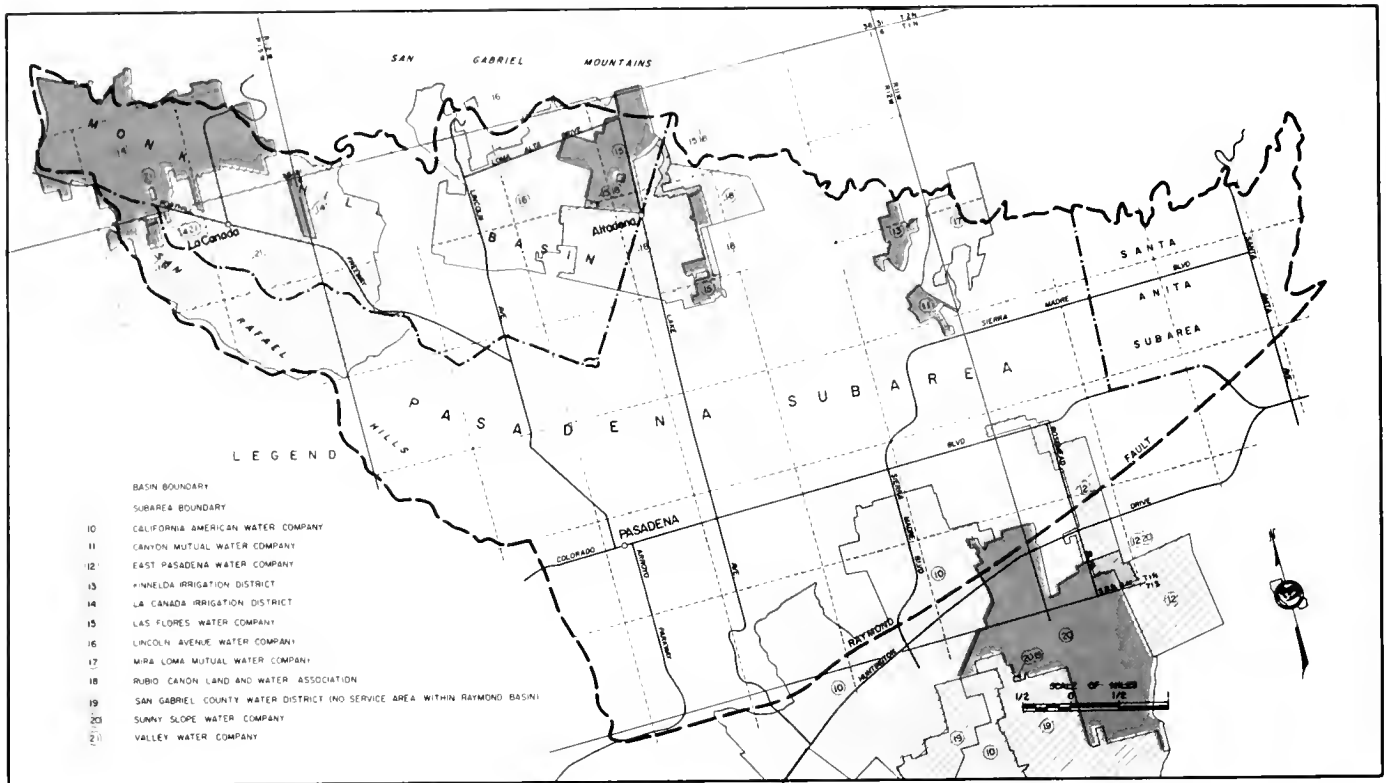
CONTENTS (continued)

List of Figures

| | | <u>Page</u> |
|----|---|-------------|
| 1 | Water Service Areas of Parties to Watermaster Service, June 1972 | 6 |
| 2 | Rainfall Characteristics of Valley Stations, 1896-1972. | 8 |
| 3 | Precipitation Stations and Spreading Grounds | 10 |
| 4 | Stream Gaging Stations | 13 |
| 5 | Lines of Equal Elevation of Ground Water, Fall 1971. | 14 |
| 6 | Lines of Equal Elevation of Ground Water, Spring 1972. | 15 |
| 7 | Lines of Equal Change of Ground Water Elevation, Fall 1970 to Fall 1971 | 15 |
| 8 | Fluctuation of Water Levels at Wells in the Pasadena Subarea | 16 |
| 9 | Fluctuation of Water Levels at Wells in Monk Hill Basin. | 18 |
| 10 | Fluctuation of Water Levels at Wells in the Santa Anita Subarea | 18 |
| 11 | Locating State Well No. 1N/12W-25Q01S. | 19 |
| 12 | Well Locations | 20 |
| 13 | Climatic Conditions and Water Use | 22 |
| 14 | Sewage Gaging Stations | 26 |

List of Tables

| | | |
|----|---|----|
| 1 | Precipitation | 9 |
| 2 | Credit for Water Spread by City of Sierra Madre | 10 |
| 3 | Water Spread for Ground Water Recharge | 11 |
| 4 | Raymond Basin Runoff | 12 |
| 5 | Summary of Water Use in 1971-72 Watermaster Year | 24 |
| 6 | Gross Water Supply | 25 |
| 7 | Exchange Water Pool Transactions | 27 |
| 8 | Annual and Five-Year Variation from Decreed Right | 28 |
| 9 | Variation of Average Annual Extractions from Safe Yield | 29 |
| 10 | Approved Budget for 1971-72 Season | 31 |
| 11 | Apportionment of Shares in 1971-72 Budget | 31 |
| 12 | Statement of 1971-72 Income and Expenditures | 32 |



(MUTUAL AND PUBLIC UTILITY)

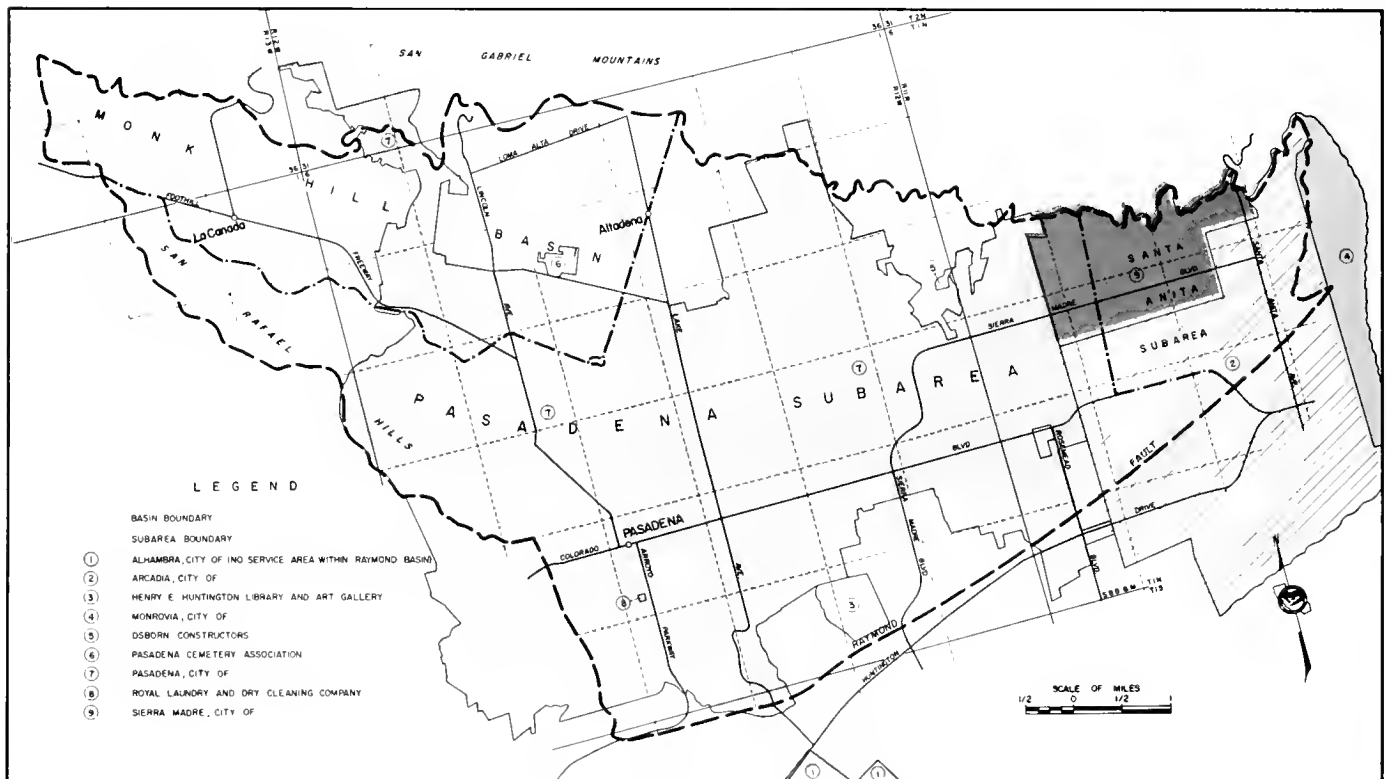


Figure 1. WATER SERVICE AREAS OF PARTIES TO WATERMASTER SERVICE, JUNE 1972

I. THE RAYMOND BASIN

A reliable source of potable ground water is a valuable asset to any community. The Raymond Basin, located in the northwest corner of the San Gabriel Valley, is such a source for the cities of Alhambra, Arcadia, Monrovia, Pasadena, San Marino, Sierra Madre, and the communities of Altadena and La Canada. Watermaster Service provided by the California Department of Water Resources helps to protect the rich supply of ground water for the residents and industries. Figure 1 depicts water service areas of the parties.

The Raymond Basin is a small, triangular ground water reservoir flanked by mountains on the north and west. The southern side is bounded by a seven-mile-long impervious dike formed by the Raymond Fault, which effectively separates the Raymond Basin from the San Gabriel Valley Basin.

Ground water has always had an impact on the people who live and work in the Raymond Basin. Most of the Basin's 40-square-mile area supports an urban-suburban population. The cities overlying the area use large amounts of fresh water daily, a substantial portion of which is pumped directly from the Basin. The Basin's supply totals 30,622 acre-feet of water.

Some years ago, when the ground water supply was endangered by rapidly falling water levels, timely legal action by interested water users halted the overdraft and prevented serious damage to the Basin. To prevent eventual depletion of ground water, the Judgment limited each party to a specific annual extraction. Certain variations were permitted but no variance could prevail beyond a five-year period. In 1955, provisions in the original Judgment were modified and variations from decreed right were restated, increasing water

rights. Since then, these have been referred to as the "Decreed Right 1955".

Presently, all water used in the Basin, particularly ground water, is monitored by a court-appointed Watermaster who reports all significant water-related events occurring in the Basin to the Superior Court and parties to the Judgment.

Activities of the Watermaster

Accurate measurement of ground water extractions is absolutely essential to the success of the Basin's management plan. The Watermaster field staff calibrates the water meter on every active water well at least once every two years and uses every available means, including system efficiency tests, to confirm water meter test results. Inaccurate meters must be repaired within 30 days. Follow-up tests on repaired meters and initial tests on new wells are scheduled whenever necessary.

Once a month the Watermaster receives ground water extraction reports from ground water pumpers and updates each water right account by computing the amounts pumped during the previous month and the current fiscal year. From this data he establishes the amount of water that may legally be extracted by each pumper during the rest of the year.

The Watermaster measures depth to static ground water level in about 115 wells situated throughout the Basin in the spring and fall and prepares fall and spring contour maps of the ground water surface and a "fall-to-fall" map showing lines of equal elevation change in a one-year period. The Watermaster also operates nine stream gaging stations to measure surface flow.

The Watermaster began a sewage outflow measurement program during the 1968-69 season, using F-type water stage recorders on 12 major sewage trunk lines leaving the Raymond Basin. The measuring program was continued during the 1971-72 season.

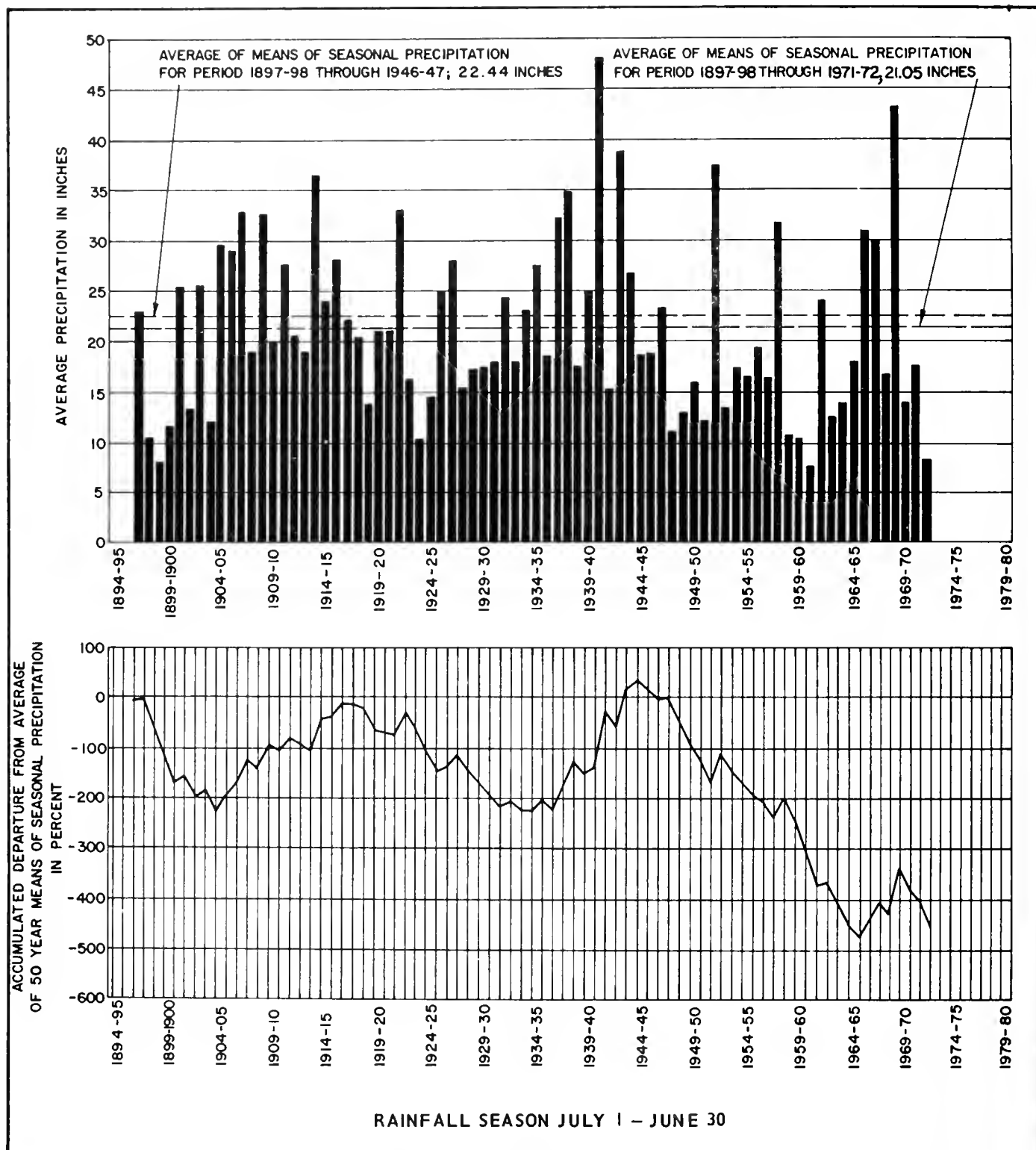


Figure 2. RAINFALL CHARACTERISTICS OF VALLEY STATIONS, 1896 - 1972

II. WATER SUPPLY

Southern California's urban economy is supplied by the Colorado and Owens Rivers, mountain runoff, ground water, reclaimed wastewater, and desalinated water. These sources contribute to one of the world's largest water supply systems.

Precipitation

The ground water supply of the highly permeable Raymond Basin could be considerably influenced by local precipitation. Natural replenishment of ground water occurs easily when water has time to percolate into a storage zone. Unfortunately, most of the Basin is urban and much of its surface is paved with asphalt and concrete that

channels the runoff before it can penetrate the ground and replenish the ground water supply.

Long-term precipitation trends appear in Figure 2, in which a downward slope indicates a continued dry period and an upward slope indicates an above normal increase in precipitation. The curve of cumulative departures from the mean shows the relative magnitude of the drought that began in 1944.

During the 1971-72 season, precipitation was about 37 percent of the long-time mean at valley stations and about 38 percent of the mean at mountain stations (Table 1). The below-normal precipitation during the past season continued the downward slope.

Table 1. PRECIPITATION

| Station | | Period of record in years | July through June, in inches | | | |
|----------------------------|--------|---------------------------------|------------------------------|---------|--------------|--------|
| Name | Type | | 1970-71 | 1971-72 | 50-year mean | |
| | Valley | Moun- tain | | | | |
| Altadena Golf Course | X | | 75 | 17.74 | 5.38 | 23.11 |
| Highland Park | X | | 77 | 13.36 | 7.77 | 18.52 |
| La Canada | X | | 60 | 18.76 | 10.75 | 23.20* |
| Mt. Wilson Airways | | X | 38 | 25.70 | 12.86 | 36.40* |
| Oakwilde | | X | 45 | 16.37 | 8.43 | 28.19* |
| Opid's Camp | | X | 55 | 32.76 | 17.18 | 41.19* |
| Pasadena Chlorine Plant | | X | 56 | 18.73 | 10.25 | 23.40* |
| Sierra Madre | X | X | 77 | 19.72 | 9.51 | 25.00 |
| Switzer's Camp | | X | 45 | 22.43 | 10.78 | 27.72* |
| Upper Haine's Canyon | | X | 54 | 26.09 | 11.60 | 30.06* |
| Seasonal Average | X | | | 17.40 | 8.35 | |
| | | X | | 23.11 | 11.52 | |
| *Estimated | | | | | | |

*Estimated

Table 2. CREDIT FOR WATER SPREAD BY CITY OF SIERRA MADRE

| Season | (1) Salvage water at beginning of year | Water spread for salvage | | | (5) Salvage water lost to subsurface outflow | (6) Salvage water extracted | (7) Salvage water at end of year (1)+(4)-(5)-(6)=(7) |
|---------|--|--------------------------|---|---------------------------------------|--|--------------------------------------|--|
| | | (2) Amount | (3) Lost through natural percolation | (4) Water stored (2)-(3)=(4) | | | |
| 1951-52 | 0 | 1,937.0 | 526.9 | 1,410.1 | 124.4 | 449.4 | 836.3 |
| 52-53 | 836.3 | 258.0 | 94.6 | 163.4 | 243.1 | 334.9 | 421.7 |
| 53-54 | 421.7 | 580.0 | 4.6 | 575.4 | 115.4 | 596.1 | 285.6 |
| 54-55 | 285.6 | 341.0 | 21.5 | 319.5 | 15.1 | 559.1 | 30.9 |
| 55-56 | 30.9 | 429.0 | 90.9 | 338.1 | 9.6 | 128.0 | 231.4 |
| 56-57 | 231.4 | 331.0 | 167.1 | 163.9 | 42.1 | 62.0 | 291.2 |
| 57-58 | 291.2 | 3,409.0 | 811.9 | 2,597.1 | 278.8 | 0.0 | 2,609.5 |
| 58-59 | 2,609.5 | 1,308.0 | 521.0 | 787.0 | 945.1 | 37.5 | 2,413.9 |
| 59-60 | 2,413.9 | 45.0 | 10.4 | 34.6 | 705.6 | 208.2 | 1,534.7 |
| 1960-61 | 1,534.7 | 51.0 | 16.0 | 35.0 | 214.1 | 1,116.3 | 239.3 |
| 61-62 | 239.3 | 1,283.0 | 445.6 | 837.4 | 43.1 | 292.9 | 740.8 |
| 62-63 | 740.8 | 1,121.0 | 554.4 | 576.6 | 241.7 | 253.9 | 821.8 |
| 63-64 | 821.8 | 699.0 | 164.4 | 534.6 | 180.2 | 451.3 | 724.9 |
| 64-65 | 724.9 | 904.0 | 208.0 | 696.0 | 142.8 | 837.3 | 440.2 |
| 65-66 | 440.2 | 4,233.0 | 979.0 | 3,254.0 | 553.9 | 433.1 | 3,140.3 |
| 66-67 | 3,140.3 | 4,537.0 | 945.1 | 3,591.9 | 1,204.6 | 0.0 | 5,527.6 |
| 67-68 | 5,527.6 | 2,625.0 | 1,069.2 | 1,555.8 | 1,749.8 | 0.0 | 5,333.5 |
| 68-69 | 5,333.5 | 2,984.0 | 371.9 | 2,612.1 | 1,590.4 | 0.0 | 6,355.2 |
| 69-70 | 6,355.2 | 1,529.3 | 932.2 | 597.1 | 1,535.3 | 0.0 | 5,417.0 |
| 1970-71 | 5,417.0 | 1,145.3 | 369.7 | 775.6 | 1,316.3 | 0.0 | 4,876.3 |
| 71-72 | 4,876.3 | 1,014.4 | 311.5 | 702.9 | 1,548.7 | 0.0 | 4,030.5 |
| Totals | | 30,764.0 | 8,605.9 | 22,148.1 | 12,800.1 | 5,760.0 | |

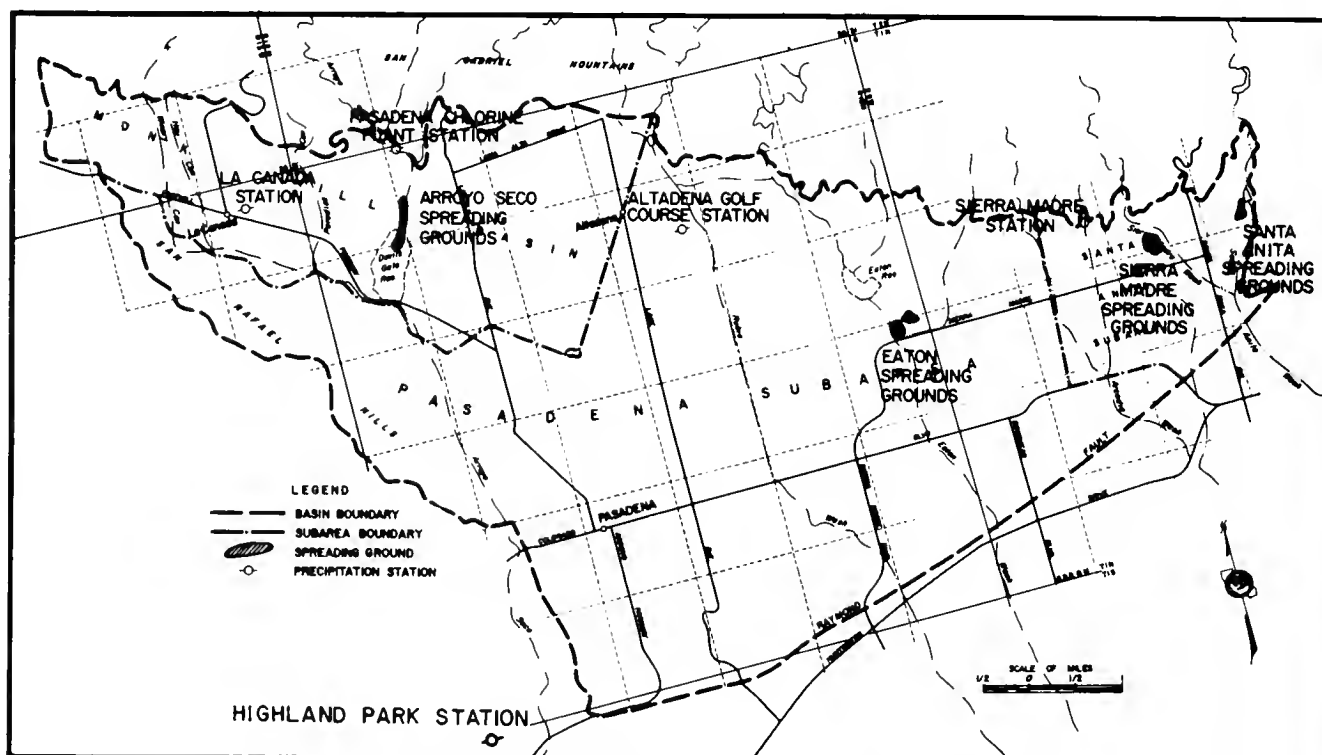


Figure 3. PRECIPITATION STATIONS AND SPREADING GROUNDS

Ground Water Recharge

Overdraft occurs when water is extracted from a ground water basin more rapidly than it is replaced naturally. Ground water aquifers usually recharge themselves so slowly that a few years of concentrated pumping may upset a balance that took centuries to establish. This is the situation that existed in the Raymond Basin several years ago.

Today, several methods of artificial recharge are being used to reestablish and maintain nature's balance. One of these is water spreading. Areas are flooded with water that will percolate into aquifers and supplement the natural supply. Large quantities of water can be returned to the ground by water spreading, but the process is limited by the space available for spreading and the capacity of the ground water basin to accept the water.

The Los Angeles County Flood Control District (LACFCD) operates three spreading grounds in the Raymond Basin--Arroyo Seco, Eaton Wash, and Santa Anita Grounds (figure 3). Another project, Sierra Madre Grounds, is operated by the City of Sierra Madre. Since the spread water is added directly to the Raymond Basin, water levels

near the spreading grounds, especially the Eastern Unit and Monk Hill Basin, reflect the additions quickly. Water spreading thus benefits all parties in the Basin considerably. (Table 3.)

Salvage Credit for City of Sierra Madre

The City of Sierra Madre spreads local street runoff and water diverted from Santa Anita Creek and Sierra Madre Wash in its spreading grounds. Essentially, the City uses the Eastern Unit as a storage facility, a privilege it obtained several years ago through an agreement with Arcadia. The Watermaster determines the total quantity of water spread in the Sierra Madre Grounds and credits the City with the portion of the spreading that is not part of the natural replenishment of the Eastern Unit. This water is called "salvage credit" water. It may not be pumped by the City until both its exchange water purchase, if any, and decreed right are fully used. Salvage credit remaining at the end of each season since 1951 is summarized in Table 2. The City did not pump any of its salvage credit water during the past season. It did, however, lose some of the stored water through subsurface outflow.

Table 3. WATER SPREAD FOR GROUND WATER RECHARGE

| Spreading Grounds | Source | Acre-feet |
|--|--|--------------|
| <u>Los Angeles County Flood Control District</u> | | |
| Arroyo Seco | Arroyo Seco | 173 |
| Eaton Wash | Eaton Canyon | 0 |
| Santa Anita | Santa Anita Canyon | 30 |
| <u>City of Sierra Madre</u> | | |
| Sierra Madre | Santa Anita Canyon, Little Santa Anita Canyon, and street runoff | <u>1,014</u> |
| | TOTAL | 1,217 |

Table 4. RAYMOND BASIN RUNOFF

| Watermaster Stream Gaging Stations | | Flow in acre-feet |
|---|--------------------------------|-------------------|
| No. | Name | |
| <u>Monk Hill Basin Flow into Devil's Gate Reservoir</u> | | |
| 62190 | Flint Wash | 1,375 |
| 62985 | West Altadena Drain | <u>283</u> |
| TOTAL INTERNAL FLOW | | 1,658 |
| <u>Inflow to Raymond Basin</u> | | |
| 62250 | Arroyo Seco ^{a/} | 618 |
| | City of Pasadena diversions | <u>926</u> |
| Subtotal | | 1,544 |
| 75360 | Eaton Wash ^{a/} | 533 |
| | City of Pasadena diversions | <u>234</u> |
| Subtotal | | 767 |
| b/ | Sierra Madre Dam ^{a/} | 47 |
| b/ | Santa Anita Dam ^{a/} | <u>1,392</u> |
| TOTAL INFLOW | | 5,408 |
| <u>Outflow from Raymond Basin</u> | | |
| b/ | Devil's Gate Dam | 763 |
| 62150 | Seco Drain | 915 |
| 75135 | Broadway Drain | 1,290 |
| 75220 | Rubio Drain | 1,633 |
| 75300 | Eaton Creek near Pasadena | 561 |
| 75450 | Arcadia Wash | 1,188 |
| b/ | Santa Anita Wash | <u>249</u> |
| TOTAL OUTFLOW | | 6,599 |
| a/ Includes water diverted to spreading grounds within the basin. | | |
| b/ Operated by Los Angeles County Flood Control District. | | |

Runoff

Thirteen stream gaging stations are used to determine the volume of surface water moving through the Raymond Basin. The Watermaster operates nine, and the Los Angeles County Flood Control District operates the remaining four. The

location of each station is shown in Figure 4. Appendix A summarizes the information collected at gaging stations operated by the Watermaster. The seasonal summary of "measured" flow at each gaging station appears in Table 4.

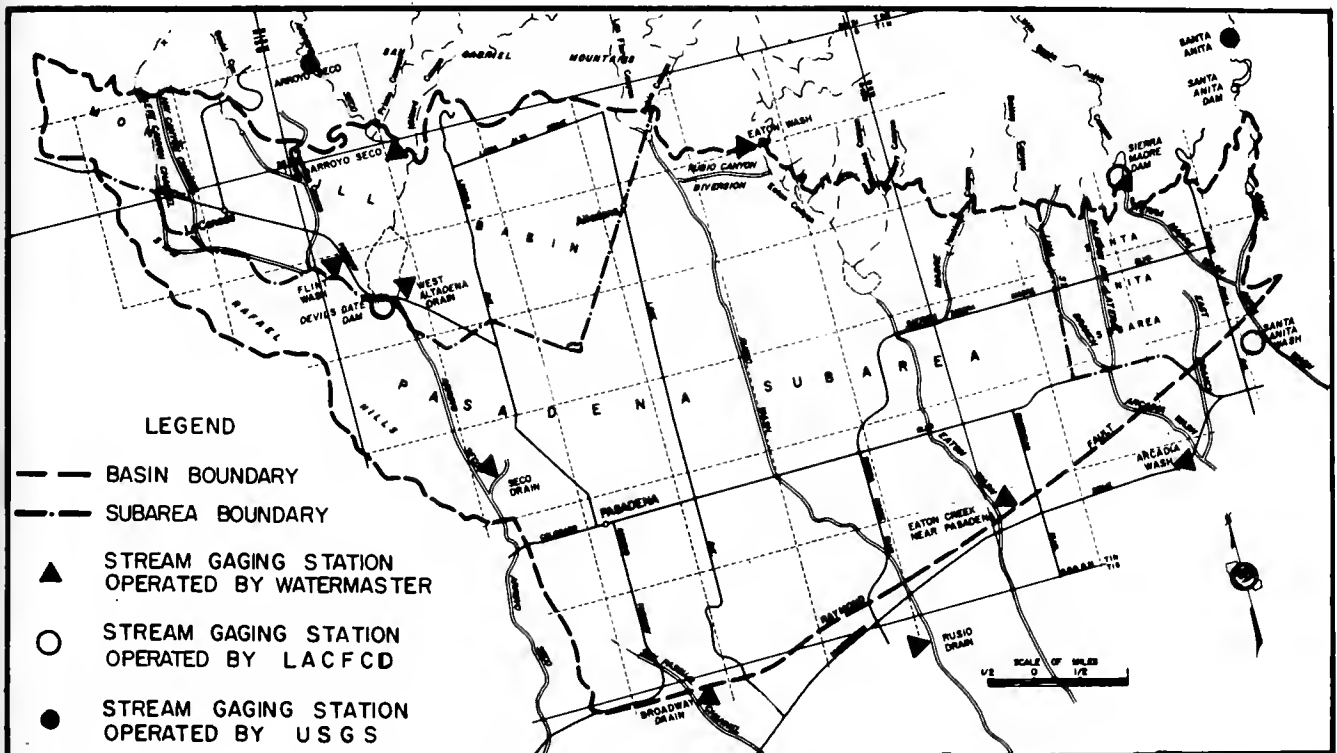


Figure 4. STREAM GAGING STATIONS

Ground Water Elevations

During the past season, the Watermaster collected and processed data to determine prevailing ground water conditions in the Raymond Basin. Results of this study appear on Figures 5, 6, and 7.

Figure 5 shows the elevations of the ground water table that existed during the fall of 1971. Figure 6 represents the water table that existed in the spring of 1972 at the end of the rainy season and shows the conditions resulting from the dry winter. Figure 7 shows the changes in elevation that occurred in the water table between the 1970 and 1971 fall seasons. Any significant change is easily detected.

Hydrographs depicting historical ground water table fluctuations in selected wells in the Raymond Basin are shown on Figures 8, 9, and 10. The sites of these wells appear on Figure 12. Many more hydrographs are available for inspection

at the Watermaster's Office.

The hydrograph of the City of Arcadia's Orange Grove No. 4 well (Figure 10) is one of the Arcadia group of wells whose performance governs the limitation of pumping in the Eastern Unit of the Raymond Basin. The limitation is imposed if the water surface at the Arcadia group of wells drops below an elevation of 500 feet above sea level. The limitation reduces the annual extraction from the Eastern Unit during the following season from 5,290 acre-feet to 3,261 acre-feet. Because the water surface was above the 500-foot limit during spring 1972, the limitation of pumping will not be in effect during the 1972-73 season.

An examination of the hydrographs also indicates that the meager 1971-72 rains which resulted in sparse water spreading brought about a very slight rise of water levels throughout the Eastern Unit and Monk Hill Basin.

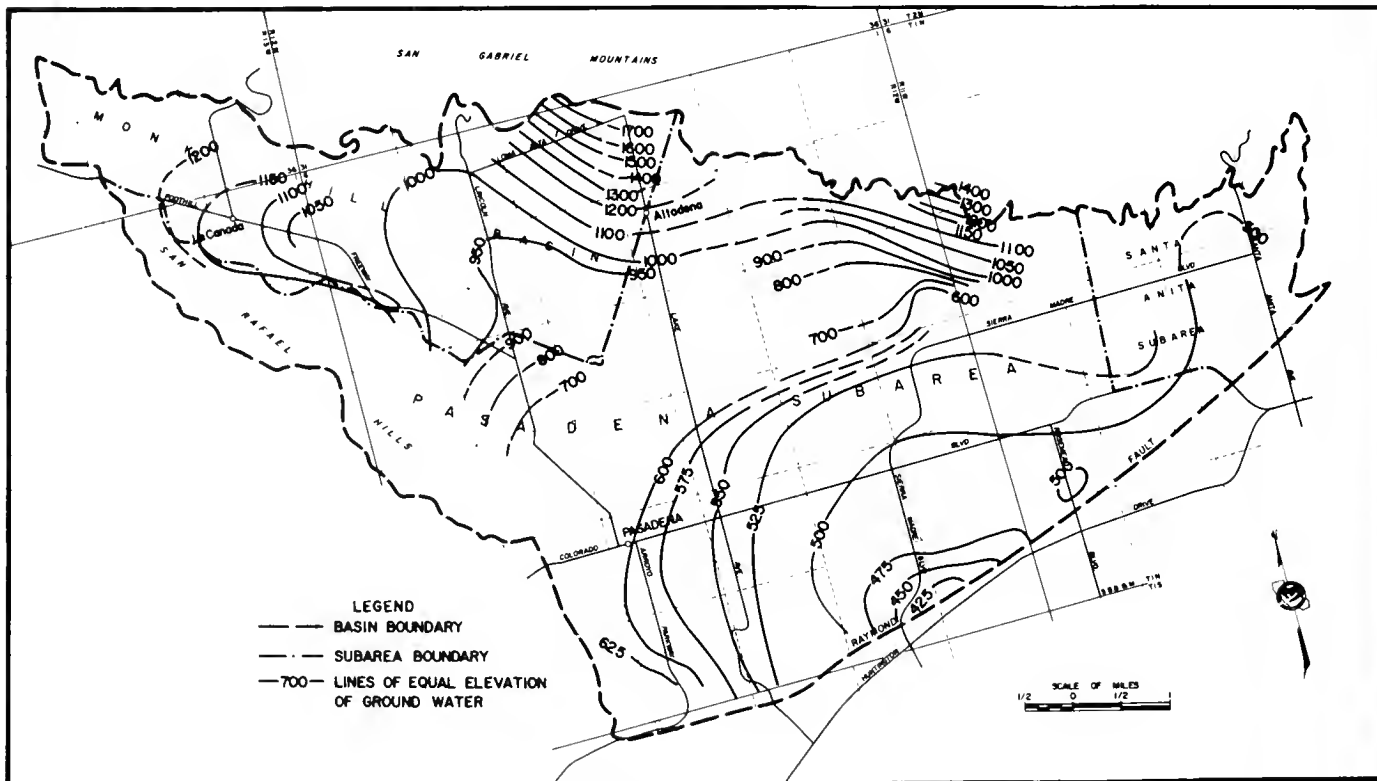


Figure 5. LINES OF EQUAL ELEVATION OF GROUND WATER, FALL 1971

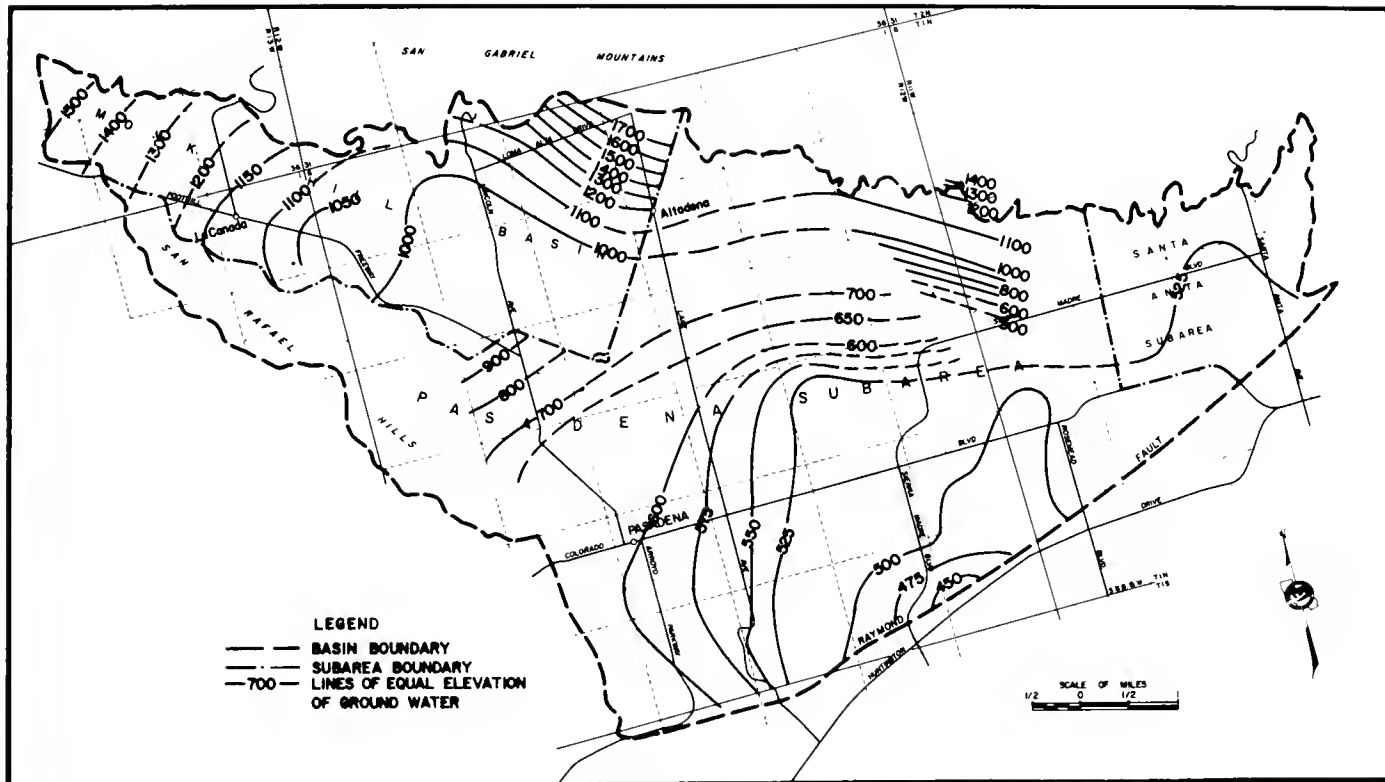


Figure 6. LINES OF EQUAL ELEVATION OF GROUND WATER, SPRING 1972

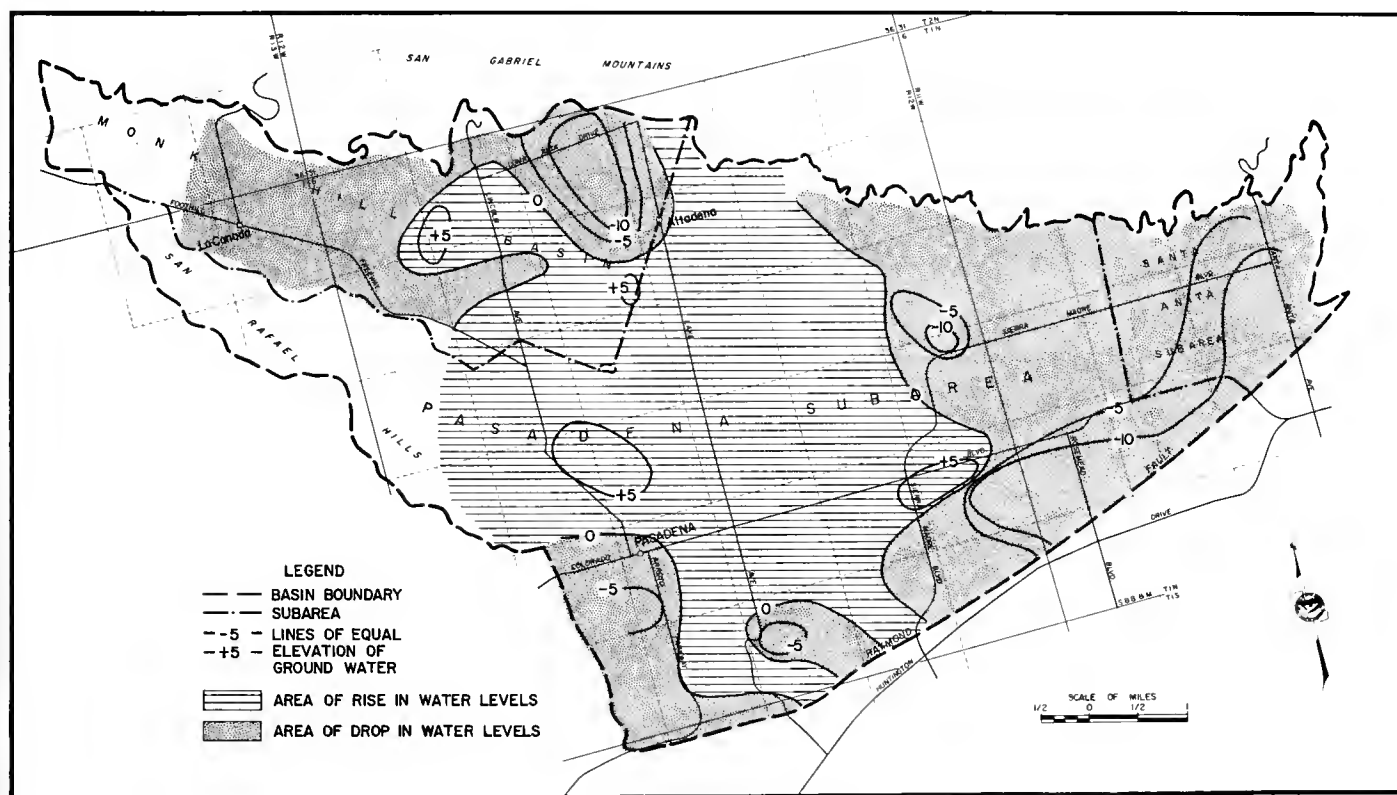


Figure 7. LINES OF EQUAL CHANGE OF GROUND WATER ELEVATION, FALL 1970 TO FALL 1971

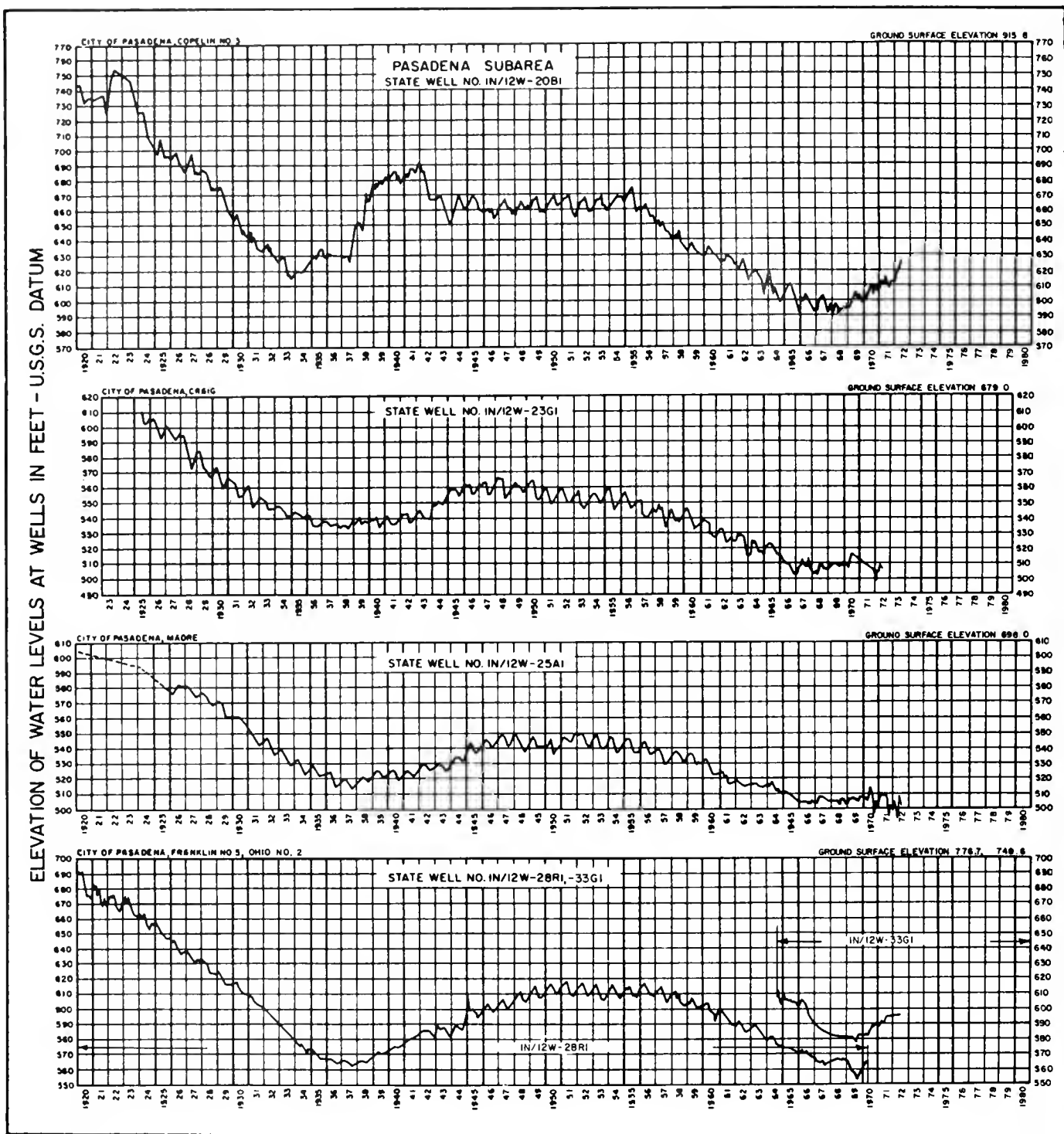


Figure 8. FLUCTUATION OF WATER LEVELS AT WELLS IN THE PASADENA SUBAREA

ELEVATION OF WATER LEVELS AT WELLS IN FEET - U.S.G.S. DATUM

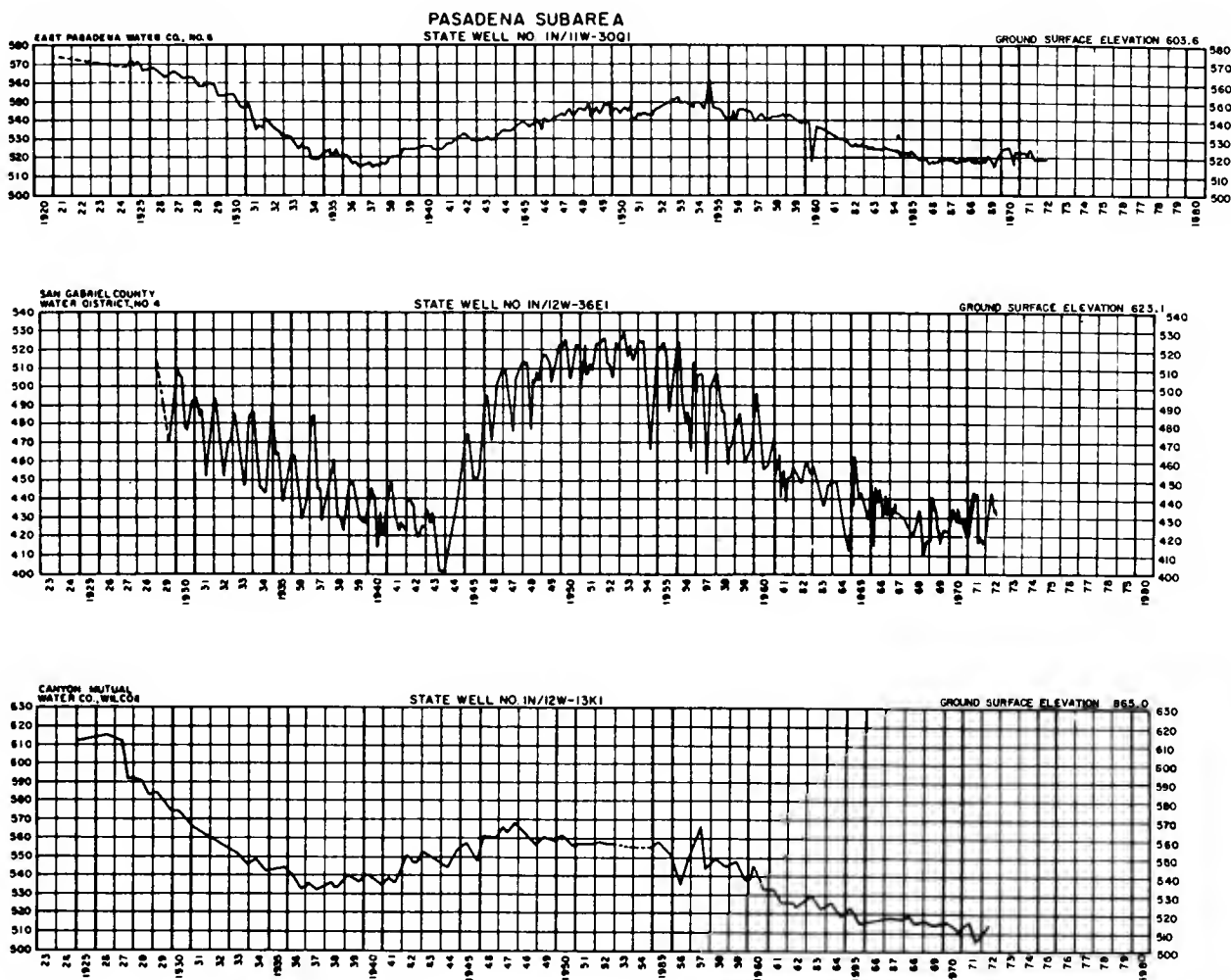


Figure 8. (continued)

ELEVATION OF WATER LEVELS AT WELLS IN FEET - U.S.G.S. DATUM

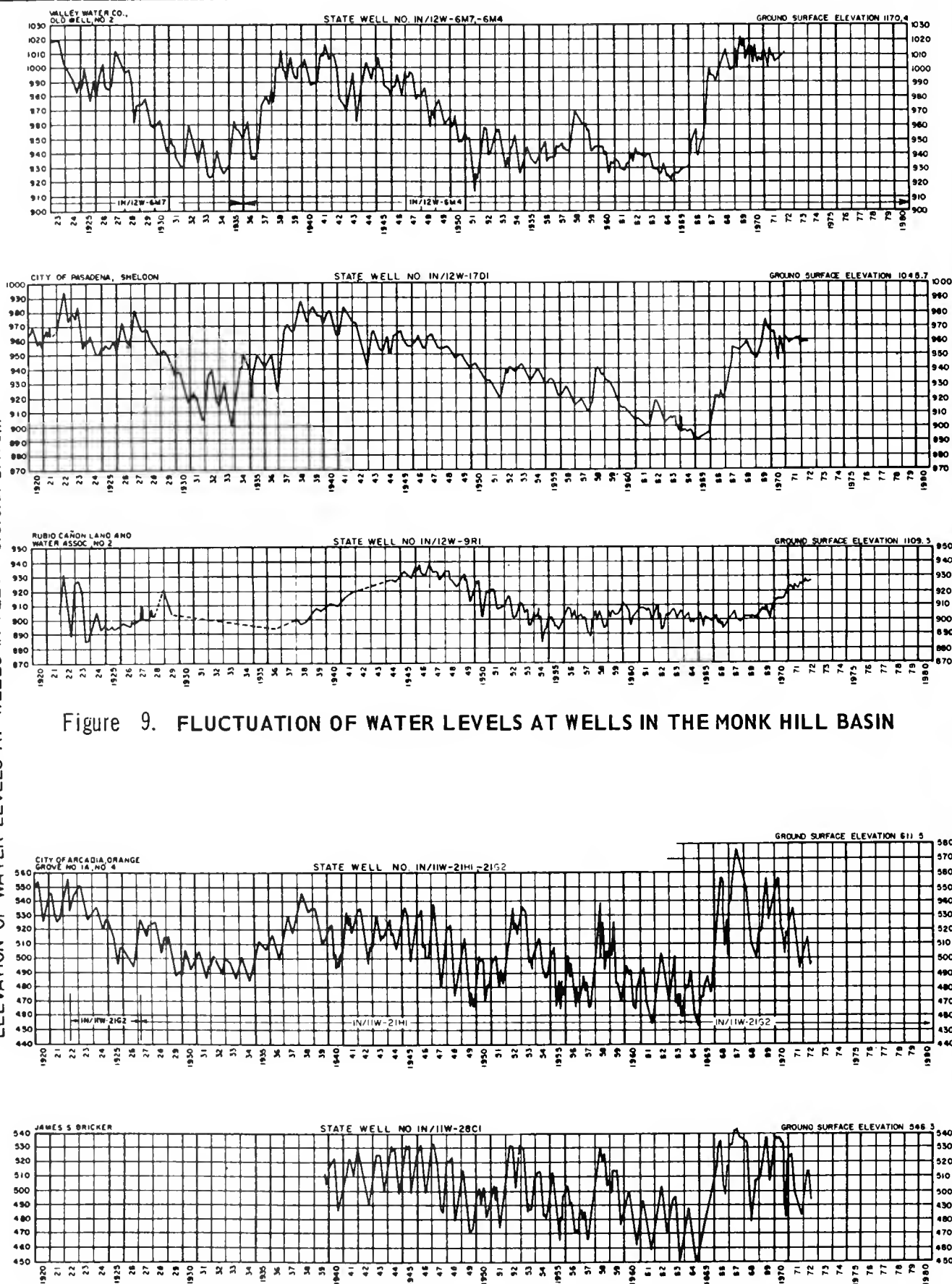


Figure 10. FLUCTUATION OF WATER LEVELS AT WELLS IN THE SANTA ANITA SUBAREA

Water Well Numbering in the Raymond Basin

In the 1971-72 season, the Raymond Basin contained 131 existing wells, 66 of which were active. No new wells were drilled and one existing well was destroyed.

Each water well in the Raymond Basin can be found by its state well number. A state well numbering system based on the U.S. Public Land Survey was adopted a number of years ago. Each well number consists of township, range, and section numbers; a letter to identify the 40-acre tract in which the well is located;

a sequence number to show the chronological order in which the well was identified; and a letter to represent the base and meridian. The letter "S" is sometimes omitted because all wells in the Raymond Basin are situated in relation to the San Bernardino base and meridian. The parts of state well number 1N/12W-25Q01S are illustrated in the following breakdown:

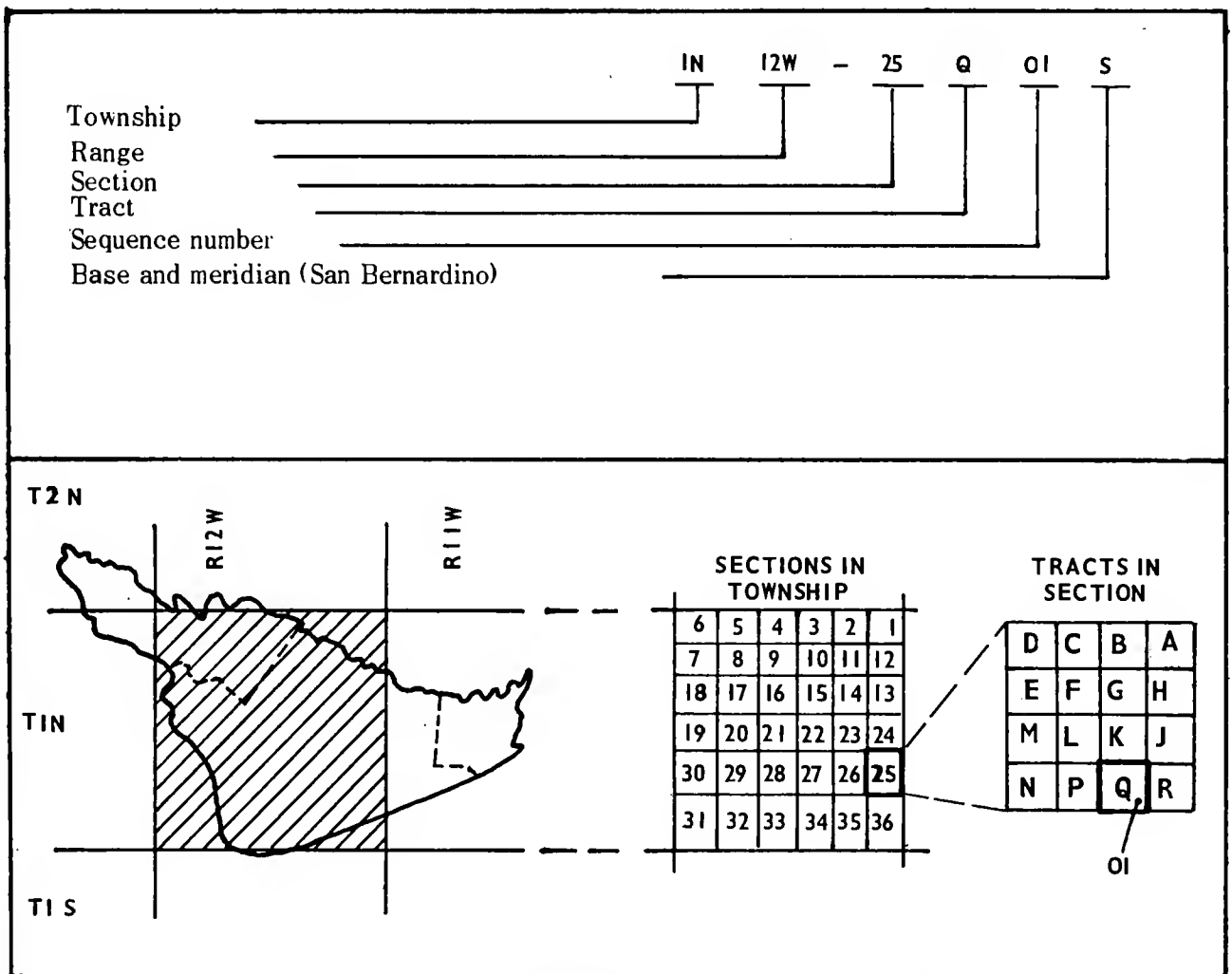


Figure 11. LOCATING STATE WELL NO. 1N/12W-25Q01S

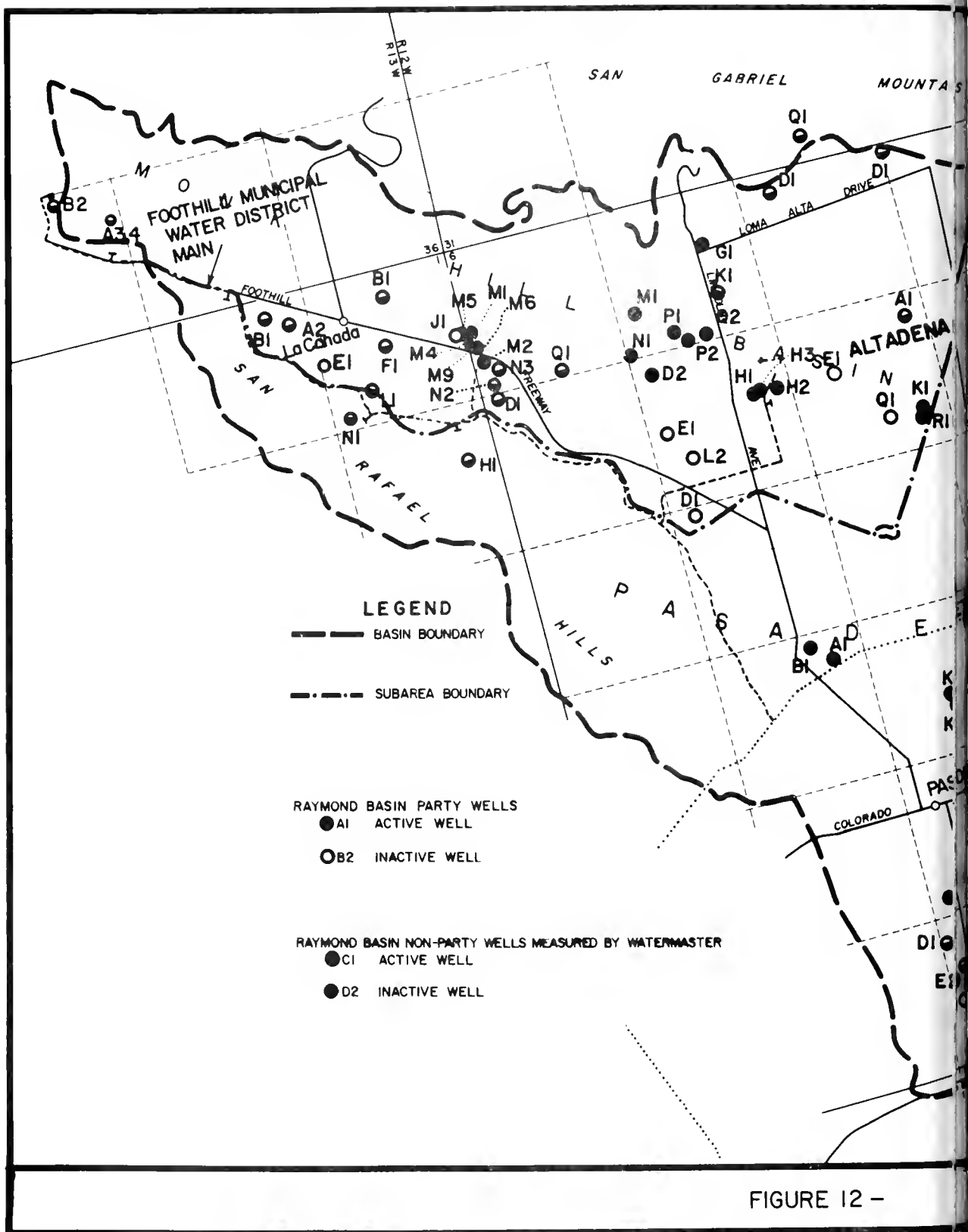


FIGURE 12 -



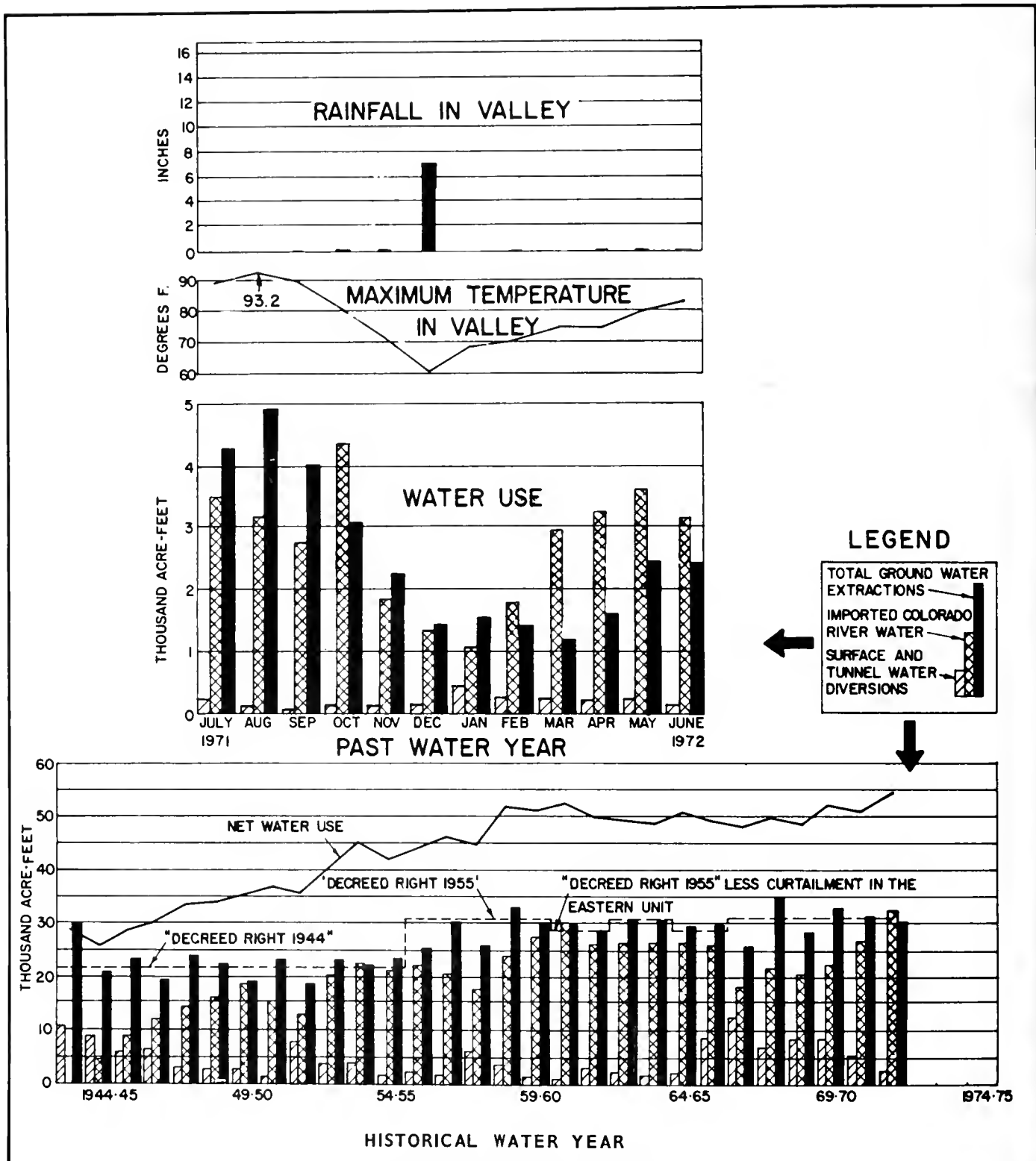


Figure 13. CLIMATIC CONDITIONS AND WATER USE

III. WATER USE

Net water use is the sum of ground water extractions, salvage water extractions (City of Sierra Madre), surface water diversions tributary to the Raymond Basin, and water imported to the basin, minus the exports from the basin. Water which is diverted for spreading is not included in the net water use computations (Table 5).

Rapid population growth between 1944 and 1958 caused a substantial increase in net water use by parties. Despite greater numbers of people, use of local ground water supplies has been held to the decreed rights since 1944. Population growth has leveled off since 1959.

Most of the increased water requirement has been met by Colorado River water imports. Historical water use and the correlation between current climatic conditions and monthly water use are presented on Figure 13. Rainfall values are based on valley station records (Table 1), and temperature values are based on the average temperatures at the Cities of Pasadena and Sierra Madre.

The bar graphs on Figure 13 are striking proof that climate is one of the most important phenomena that regulate water use. For example, as rainfall increases and temperatures fall, water use declines.

Ground Water Extractions

The Raymond Basin Judgment limits the amount of ground water that each party can extract annually from the basin or can release to the Water Exchange Pool for pumping by other parties. Recipients of exchange water may pump the amount released to them in addition to their "Decreed Right 1955."

The metered ground water production from each active well in the basin is listed by party in Appendix B, which shows the total ground water production reported by each party.

The gross water supply includes all sources of water necessary to supply each party's total water requirement. A report on the gross water supply of all parties appears in Table 6. Several parties that extracted ground water from the basin adjacent to the Raymond Basin are also shown in Table 6.

Surface Water Diversion

The Judgment allows certain parties to divert surface water tributary to the Raymond Basin. Parties also divert and import nontributary surface water. Two types of diversions are used: surface and tunnel. Surface diversions collect surface water, such as streams or springs. Tunnel diversions collect subsurface water in either horizontal or vertical galleries. In both cases, the water is diverted to a reservoir, treatment plant, or service facility. (See Table 6.)

Use of Imported Water

Colorado River water was first available in June 1941 to the City of Pasadena. However, the city did not begin to use this water continuously until June 1945. The amount of Colorado River water imported last season by each party connected with the Foothill Municipal Water District and by the City of Pasadena is shown in Table 6.

Ground Water Exports

The Watermaster assumes that parties with service areas both inside and outside the basin export ground water only if their water sales in the basin are less than the sum of water pumped, diverted, and purchased in the basin. Since the City of Pasadena's supply of water comes from several sources, its total export contains Colorado River water, diverted surface water, and ground water. (See Table 6.)

Table 5. SUMMARY OF WATER USE IN 1971-72 WATERMASTER YEAR

| Party | (1) | (2) | Excluding carryover from 1970-71 | | (5) | Including carryover from 1970-71 | |
|--|----------------------------|-----------------------------------|---|---|------------------------------|---|---|
| | "Decreed Right 1955" | Total amount pumped 1971-72 | (3) | (4) | Carryover from 1970-71 | (6) | (7) |
| | | | Balance on June 30, 1972 (1)-(2)=(3) | Overextraction in percent of "Decreed Right 1955" (3)÷(1)× 100=(4) | | Balance on June 30, 1972 (1)-(2)+(5)=(6) | Overextraction in percent of "Decreed Right 1955" (6)÷(1)× 100=(7) |
| WESTERN UNIT | | | | | | | |
| Monk Hill Basin | | | | | | | |
| La Canada Irrigation District | 100.00 | 15.91 | 84.09 | | 167.33 | 251.42 | |
| Las Flores Water Company | 249.00 | 277.19 | - 28.19 | 11.32 | 26.73 | - 1.46 | 0.58 |
| Lincoln Avenue Water Company | 567.00 | 671.11 | - 104.11 | 18.36 | - 79.58 | - 183.69 | 32.39 |
| Pasadena Cemetery Association | 91.00 | 105.05 | - 14.05 | 15.43 | 32.85 | 18.80 | |
| Pasadena, City of | 4,464.00 | 4,285.82 | 178.18 | | 1,415.12 | 1,593.30 | |
| Rubio Canon Land and Water Association | 1,221.00 | 1,168.06 | 52.94 | | - 19.11 | 33.83 | |
| Valley Water Company | <u>797.00</u> | <u>884.95</u> | <u>- 87.95</u> | 11.03 | <u>227.15</u> | <u>139.20</u> | |
| Subtotals | 7,489.00 | 7,408.09 | 80.91 | | 1,770.49 | 1,851.40 | |
| Pasadena Subarea | | | | | | | |
| Alhambra, City of | 1,031.00 | 902.13 | 128.87 | | 1,174.11 | 1,302.98 | |
| Arcadia, City of | 1,167.00 | 1,179.83 | - 12.83 | 1.09 | - 50.70 | - 63.53 | 5.44 |
| California-American Water Company | 2,299.00 | 2,489.18 | - 190.18 | 8.27 | - 51.35 | - 241.53 | 10.50 |
| Canyon Mutual Water Company | 127.00 | 37.88 | 89.12 | | 688.88 | 778.00 | |
| East Pasadena Water Company | 515.00 | 429.71 | 85.29 | | 640.08 | 725.37 | |
| Henry E. Huntington Library and Art Gallery | 262.00 | 386.84 | - 124.84 | 47.64 | 232.09 | 107.25 | |
| Kinneloa Irrigation District | 184.00 ^{a/} | 148.04 | 35.96 | | 1,496.56 | 1,532.52 | |
| Mira Loma Mutual Water Company | 148.00 | 83.77 | 64.23 | | 472.61 | 536.84 | |
| Monrovia, City of | 951.00 | 681.31 | 269.69 | | - 211.95 | 57.74 | |
| Osborn Constructors | 12.00 | 30.83 | - 18.83 | 156.91 | 399.99 | 381.16 | |
| Pasadena, City of | 8,343.00 | 8,729.88 | - 386.88 | 4.63 | -1,200.73 | - 1,587.61 | 19.02 |
| Royal Laundry and Dry Cleaning Company | 155.00 ^{b/} | 158.24 | - 3.24 | 2.09 | - 10.61 | - 13.85 | 8.93 |
| San Gabriel County Water District | 1,091.00 | 1,072.71 | 18.29 | | - 16.94 | 1.35 | |
| Sunny Slope Water Company | <u>1,558.00</u> | <u>1,028.74</u> | <u>529.26</u> | | <u>- 8.67</u> | <u>470.59</u> | |
| Subtotals | 17,843.00 | 17,359.09 | 483.91 | | 3,503.37 | 3,987.28 | |
| TOTALS - WESTERN UNIT | 25,332.00 | 24,767.18 | 564.82 | | 5,273.86 | 5,838.68 | |
| Recapitulation for City of Pasadena (WESTERN UNIT) | 12,807.00 | 13,015.70 | - 208.70 | 1.62 | 214.39 | 5.69 | |
| EASTERN UNIT | | | | | | | |
| Santa Anita Subarea | | | | | | | |
| Arcadia, City of | 3,526.00 | 3,435.26 | 90.74 | | - 129.22 | - 38.48 | 1.09 |
| Sierra Madre, City of | <u>1,764.00</u> | <u>2,358.84^{c/}</u> | <u>- 594.84</u> | 33.72 | <u>667.16</u> | <u>72.32</u> | |
| TOTALS - EASTERN UNIT | <u>5,290.00</u> | <u>5,794.10</u> | <u>- 504.10</u> | 9.52 | <u>537.94</u> | <u>33.84</u> | |
| GRAND TOTALS | 30,622.00 | 30,561.28 | 60.72 | | 5,811.80 | 5,872.52 | |

a/ Decreed Right (229 acre-feet) less 45 acre-feet released to Exchange Pool.

b/ Decreed Right (110 acre-feet) plus 45 acre-feet received from Exchange Pool.

c/ Value equal to total water pumped. No salvage water was pumped during 1971-72.

Table 6. GROSS WATER SUPPLY
In acre-feet

| Party | Total ground water extractions | | Total surface water diversions | | Total water | | Net water use within the basin |
|---|--------------------------------|-----------------------------|--------------------------------|---|------------------------|------------------|--------------------------------|
| | Inside basin | Outside basin ^{a/} | Tributary to Raymond Basin | Nontributary to Raymond Basin ^{a/} | Imported ^{b/} | Exported | |
| Alhambra, City of | 902.13 | (11,072.80) | | | - 902.13 | | 0.00 |
| Arcadia, City of | 4,615.09 | (10,767.15) | | | - 322.67 | | 4,292.42 |
| California-American Water Company | 2,489.18 | (4,857.01) | | | 58.09 ^{c/} | | 2,547.27 |
| Canyon Mutual Water Company | 37.88 | | | | | | 37.88 |
| East Pasadena Water Company | 429.71 | (1,766.71) | | | 44.77 ^{c/} | | 474.48 |
| Henry E. Huntington Library and Art Gallery | 386.84 | | | | | | 386.84 |
| Kinneloa Irrigation District | 148.04 | | 227.98 | | | | 376.02 |
| La Canada Irrigation District | 15.91 | | | (259.02) | 2,300.87 | | 2,316.78 |
| Las Flores Water Company | 277.19 | | 91.95 | | 588.58 | | 957.72 |
| Lincoln Avenue Water Company | 671.11 | | 219.60 | | 1,818.68 | | 2,709.39 |
| Mira Loma Mutual Water Company | 83.77 | | 125.74 | | | | 209.51 |
| Monrovia, City of | 681.31 | (7,007.41) | | (484.12) | - 681.31 | | 0.00 |
| Osborn Constructors | 30.83 | | | | | | 30.83 |
| Pasadena Cemetery Association | 105.05 | | | | | | 105.05 |
| Pasadena, City of | 13,015.70 | | 1,159.65 | | 22,343.51 | -5,652.69 | 30,866.17 |
| Royal Laundry and Dry Cleaning Company | 158.24 | | | | | | 158.24 |
| Rubio Canon Land and Water Association | 1,168.06 | | 189.41 | | 1,339.66 | | 2,697.13 |
| San Gabriel County Water District | 1,072.71 | (5,924.17) | | | -1,072.71 | | 0.00 |
| Sierra Madre, City of | 2,358.84 | | 458.56 ^{d/} | | | | 2,817.40 |
| Sunny Slope Water Company | 1,028.74 | (3,438.20) | | | - 896.57 | | 132.17 |
| Valley Water Company | 884.95 | | | | 2,419.28 | | 3,304.23 |
| TOTALS | 30,561.28 | | 2,472.89 | | 30,913.44 | -9,528.08 | 54,419.53 |

^{a/} Used by parties in areas outside the Raymond Basin
^{b/} Colorado River water except as noted.
^{c/} Ground water from outside basin.
^{d/} Does not include 1,014.35 acre-feet diverted for spreading to recharge the ground water.

Nonparty Ground Water Extraction

The Watermaster continues to monitor non-party ground water extractions. Two non-party pumpers in the Western Unit continue to extract ground water:

Huntington-Sheraton Hotel 16 acre-feet
State Well No. 1N/12W-34N1

Las Encinas Hospital
State Well No. 1N/12W-25K1 101 acre-feet
State Well No. 1N/12W-25L2

The hotel extractions were estimated by the plant engineer. The hospital based its water use on water meter readings. California Consumers Corporation did not pump water in the past year because of continued problems with its water well.

Exports of Sewage

In the 1967-68 season, to measure sewage outflow, the Watermaster selected key stations on large sewage trunk lines leaving the basin across the Raymond Fault and was granted temporary permission to install recorders at each. Next season, the Watermaster installed F-type water stage recorders in 12 trunk lines for one week. See Figure 14 for locations.

During the past water year F-type water stage recorders were again installed in the trunk lines for one week during the month of June.

The sewage outflow appears to be increasing yearly. The records show two previous estimates as: 1938-39--5,900 acre-feet; 1951-52--9,500 acre-feet, and the computed outflow for the 1968-69

and 1970-71 seasons as 20,000 and 21,000 acre-feet, respectively. However, the past year's computed outflow is 17,778 acre-feet. This drop in outflow has not been satisfactorily interpreted and is therefore subject to revision.

Flow at Key Stations

| <u>Station</u> | <u>Acre-Feet</u> |
|---------------------------------------|------------------|
| 1. Grand Avenue | 2277 |
| 2. Garfield Avenue | 2307 |
| 3. Los Robles Avenue | 849 |
| 4. Old Mill Road | 50 |
| 5. Virginia Road | 1427 |
| 6. San Marino Avenue | 3911 |
| 7. Sierra Madre Blvd. | 102 |
| 8. N. Gainsborough St. | 2106 |
| 9. Sunset Blvd. | 2916 |
| 10. Old Ranch Road | 363 |
| 11. Colorado Place | 221 |
| 12. Colorado Blvd. at First Street | 1249 |
| Total | 17,778 |

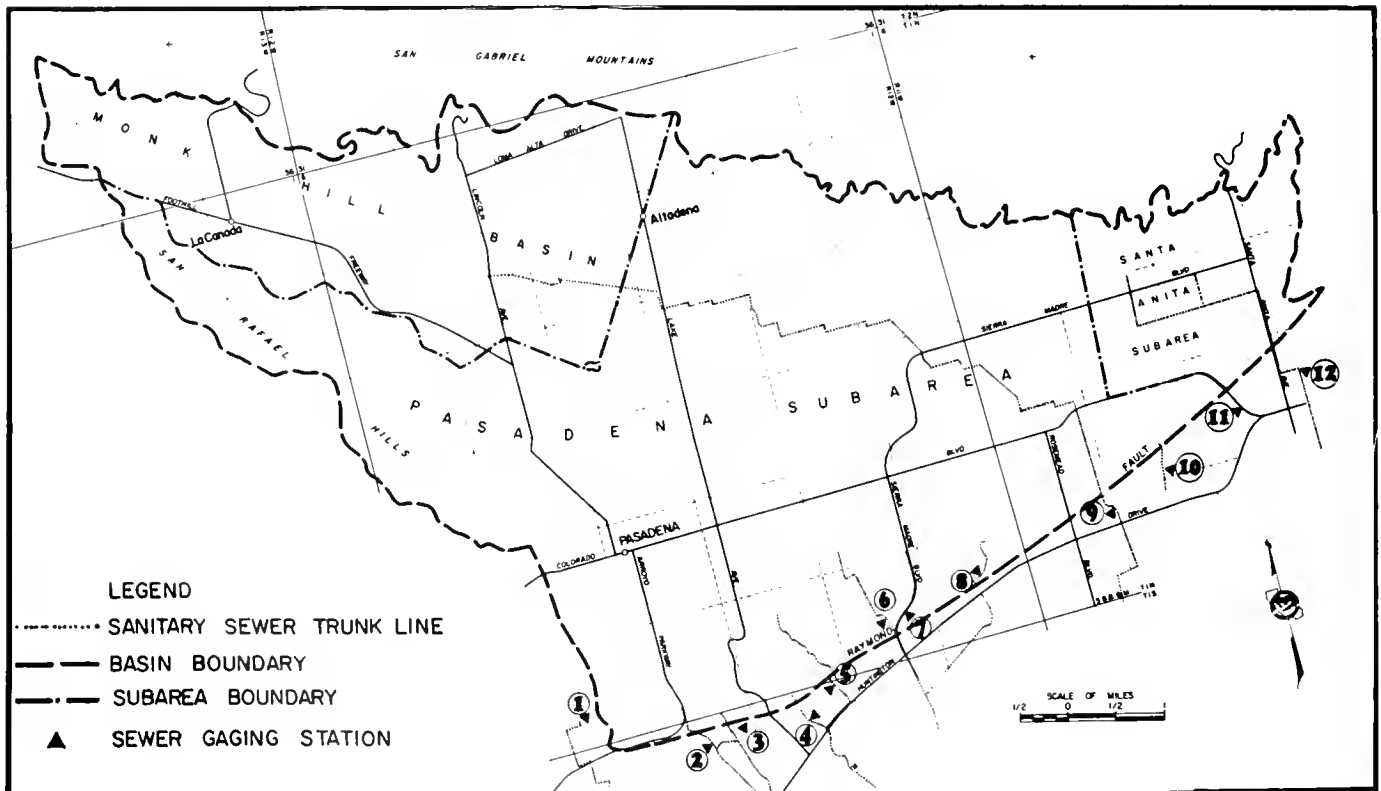


Figure 14. SEWAGE GAGING STATIONS

IV. ADMINISTRATION OF THE JUDGMENT

The Raymond Basin Advisory Board created by the Los Angeles County Superior Court assists and advises the Watermaster on matters of policy and budget preparation. The members are:

K. A. Johnson, Chairman, City of Pasadena
E. D. Richards, Secretary, Monk Hill Basin
L. Magoffin, Pasadena Subarea
J. A. Grivich, Santa Anita Subarea
B. Westcamper, Santa Anita Subarea

Messrs. Grivich and Westcamper alternate annually; Mr. Grivich serves in odd-numbered years and Mr. Westcamper serves in even-numbered years.

To manage the Basin effectively, the Board initiated a cooperative water resources management study during fiscal year 1967-68. Begun under an agreement signed March 21, 1968, by the Department of Water Resources and the City of Pasadena for all parties, the program has as its objective the design of a mathematical model of the Basin to simulate the dynamic behavior of a ground water basin and surface water facilities under various operations plans. The Basin was divided into 79 subzones so that the ground water level information gained would be sufficiently detailed for long-range planning.

Before projections could be made, the model's accuracy had to be verified against historic hydraulic data. Numerous alternative plans for using ground and surface water together were then imposed on the model. With the data thus obtained, a wide range of operational and economic information is being developed for management planning. The analysis was completed during the 1970-71 fiscal year and the findings of the investigation were published as Bulletin No. 104-6, dated June 1971.

During 1971-72 the model was used to study several plans of spreading diverted surface waters from Eaton Canyon and Arroyo Seco.

Exchange Pool

The Exchange Water Agreement authorized by the Court created an Exchange Pool to provide additional water rights for parties who lacked supplementary supplies. Membership in the pool is voluntary, and any party can join by signing the Agreement.

The Agreement was important during the first years of the Judgment when only Pasadena had access to Colorado River water. Now six parties receive such water through the facilities of the Foot-hill Municipal Water District and the importance of the Pool has declined considerably. The history of Exchange Pool transactions appears in Table 7.

Table 7. EXCHANGE WATER POOL TRANSACTIONS

| Season | Quantity of water purchased, in acre-feet | | | | Average cost, per acre-foot | |
|---------|--|---------------------|------------------------|--------------------------|--------------------------------|-----------------|
| | Western Unit | | Eastern Unit | | Western Unit | Eastern Unit |
| | Monk Hill Basin | Pasadena Subarea | Santa Anita Subarea | Raymond Basin Ares | | |
| 1944-45 | 925 | 53 | 0 | 978 | \$ 29.88 | \$ |
| 45-46 | 550 | 82 | 600 | 1,232 | 17.49 | 4.00 |
| 46-47 | 2,750 | 64 | 300 | 3,114 | 29.39 | 4.00 |
| 47-48 | 3,150 | 142 | 0 | 3,292 | 29.88 | |
| 48-49 | 5,150 | 115 | 0 | 5,265 | 32.16 | |
| 49-50 | 3,782 | 160 | 300 | 4,242 | 34.77 | 15.00 |
| 1950-51 | 3,938 | 96 | 700 | 4,734 | 31.82 | 15.00 |
| 51-52 | 3,929 | 100 | 0 | 4,029 | 35.55 | 15.00 |
| 52-53 | 3,929 | 72 | 0 | 4,001 | 31.62 | |
| 53-54 | 3,929 | 67 | 0 | 3,996 | 35.29 | |
| 54-55 | 3,929 | 215 | 0 | 4,144 | 34.35 | |
| 55-56 | 2,850 | 41 | 0 | 2,891 | 34.14 | |
| 56-57 | 1,700 | 10 | 0 | 1,710 | 27.89 | |
| 57-58 | 1,050 | 0 | 0 | 1,050 | 26.67 | |
| 58-59 | 0 | 70 | 0 | 70 | 20.00 | |
| 59-60 | 0 | 45 | 0 | 45 | 25.00 | |
| 1960-61 | 0 | 25 | 0 | 25 | 20.00 | |
| 61-62 | 0 | 40 | 600 | 640 | 18.00 | 31.00 |
| 62-63 | 0 | 25 | 0 | 25 | 17.00 | |
| 63-64 | 0 | 30 | 0 | 30 | 17.00 | |
| 64-65 | 0 | 35 | 200 | 235 | 17.00 | 64.55 |
| 65-66 | 0 | 25 | 300 | 325 | 17.00 | 37.58 |
| 66-67 | 0 | 0 | 0 | 0 | | |
| 67-68 | 0 | 10 | 0 | 10 | 10.00 | |
| 68-69 | 0 | 40 | 0 | 40 | 25.00 | |
| 69-70 | 0 | 50 | 0 | 50 | 25.00 | |
| 1970-71 | 0 | 40 | 0 | 40 | 25.00 | |
| 71-72 | 0 | 45 | 0 | 45 | 25.00 | |
| TOTALS | 41,561 | 1,697 | 3,000 | 46,258 | | |

Table 8. ANNUAL AND FIVE-YEAR VARIATION FROM DECREED RIGHT ^{a/}
In acre-feet

| Party | Year | | | | | Five-year variation |
|--|-------------------|-------------------|-------------------|-----------------|-----------------------|------------------------|
| | 1967-68 | 1968-69 | 1969-70 | 1970-71 | 1971-72 ^{b/} | |
| <u>WESTERN UNIT</u> | | | | | | |
| (Monk Hill Basin) | | | | | | |
| La Canada Irrigation District | - 135.29 | + 29.85 | + 56.32 | + 89.50 | + 84.09 | + 124.47 |
| Las Flores Water Company | - 5.29 | + 56.74 | - 46.92 | + 17.18 | - 28.19 | - 6.48 |
| Lincoln Avenue Water Company | - 173.30 | - 62.64 | + 3.54 | + 8.49 | - 104.11 | - 328.02 |
| Pasadena Cemetery Association | - 17.35 | - 8.08 | - 23.06 | - 18.37 | - 14.05 | - 80.91 |
| Pasadena, City of | + 1,092.58 | - 995.10 | - 526.94 | - 1,105.44 | + 178.18 | - 1,356.72 |
| Rubio Canon Land and Water Association | - 287.09 | - 145.24 | - 266.64 | + 86.35 | + 52.94 | - 559.68 |
| Valley Water Company | - 44.66 | + 216.55 | - 129.17 | + 124.51 | - 87.95 | + 79.28 |
| Subtotals | + 429.60 | - 907.92 | - 932.87 | - 797.78 | + 80.91 | - 2,128.06 |
| (Pasadena subarea) | | | | | | |
| Alhambra, City of | + 739.47 | - 1.67 | + 261.98 | - 108.79 | + 128.87 | + 1,019.86 |
| Arcadia, City of | - 30.65 | + 53.89 | + 189.19 | - 254.47 | - 12.83 | - 54.87 |
| California-American Water Company | - 187.03 | - 41.03 | + 22.70 | + 30.41 | - 190.18 | - 365.13 |
| Canyon Mutual Water Company | + 94.02 | + 95.85 | + 72.66 | + 76.84 | + 89.12 | + 428.49 |
| East Pasadena Water Company | - 117.70 | + 154.73 | + 75.97 | + 12.67 | + 85.29 | + 210.96 |
| Huntington Library and Art Gallery | + 3.03 | + 46.80 | - 20.65 | - 40.19 | - 124.84 | - 135.85 |
| Kinneloa Irrigation District | + 73.32 | - 2.45 | + 94.77 | + 99.16 | + 35.96 | + 300.76 |
| Mira Loma Mutual Water Company | + 89.77 | + 19.46 | + 44.83 | + 67.51 | + 64.23 | + 285.80 |
| Monrovia, City of | - 2.46 | - 39.27 | - 99.31 | - 226.16 | + 269.69 | - 97.51 |
| Osborn Constructors | - 10.87 | - 7.08 | - 15.33 | - 18.72 | - 18.83 | - 70.83 |
| Pasadena, City of | - 2,699.10 | + 2,041.14 | - 1,468.97 | + 1,185.24 | - 386.88 | - 1,328.57 |
| Royal Laundry and Dry Cleaning Company | - 49.95 | - 0.18 | + 9.16 | - 4.82 | - 324.00 | - 49.03 |
| San Gabriel County Water District | - 21.64 | + 38.39 | - 14.92 | - 14.03 | + 18.29 | + 6.09 |
| Sunny Slope Water Company | - 20.77 | + 4.71 | - 19.40 | - 53.24 | + 529.26 | + 440.56 |
| Subtotals | - 2,140.56 | + 2,363.29 | - 867.32 | + 751.41 | + 483.91 | + 590.73 |
| <u>TOTALS - WESTERN UNIT</u> | <u>- 1,710.96</u> | <u>+ 1,455.37</u> | <u>- 1,800.19</u> | <u>- 46.37</u> | <u>+ 564.82</u> | <u>- 1,537.33</u> |
| Recapitulation for City of Pasadena | - 1,606.52 | + 1,046.04 | - 1,995.91 | + 79.80 | - 208.70 | - 2,685.29 |
| <u>EASTERN UNIT</u> | | | | | | |
| (Santa Anita Subarea) | | | | | | |
| Arcadia, City of | - 1,782.66 | + 565.32 | - 332.61 | - 186.80 | + 90.74 | - 1,646.01 |
| Sierra Madre, City of ^{c/} | + 41.36 | + 212.91 | + 177.44 | - 134.75 | - 594.84 | - 297.88 |
| <u>TOTALS - EASTERN UNIT</u> | <u>- 1,741.30</u> | <u>+ 778.23</u> | <u>- 155.17</u> | <u>- 321.55</u> | <u>- 504.10</u> | <u>- 1,943.89</u> |
| <u>GRAND TOTALS</u> | <u>- 3,452.26</u> | <u>+ 2,233.60</u> | <u>- 1,955.36</u> | <u>- 367.92</u> | <u>+ 60.72</u> | <u>- 3,481.22</u> |

^{a/} Difference between extractions and decreed rights as shown in past reports. Carryover balances are not accounted for in this tabulation. Overextractions are shown as negative (-) values.

^{b/} Values from Column (3), Table 5.

^{c/} Excludes salvage water pumped.

Each April the Watermaster mails an Exchange Pool form to all parties, opening the Pool to inter-member water right leasing. This year, the Royal Laundry and Dry Cleaning Company leased 45 acre-feet of water for \$25 per acre-foot from the Kinneloa Irrigation District. The total cost of the water was \$1,125.

Water Rights may also be leased or sold outright. No sale agreements were made this year among the parties.

Annual Variation in Extraction

The annual amount extracted by each party and the percentage variation from the "Decreed Right 1955" are shown in Table 5 (page 24). Exchange water sold or bought is accounted for in the Decreed Right. Barring emergencies, the Judgment prohibits annual extractions

Table 9. VARIATION OF ANNUAL EXTRACTIIONS FROM SAFE YIELD

| July 1 through June 30 | Annual extractions | | | | |
|---------------------------------|---|----------|------------------------------|--------------------------|---------|
| | Monk Hill : Pasadena Basin : Subarea | Subtotal | Eastern Unit ^a | Raymond Basin Area | |
| 1950-51 | 7,098 | 13,418 | 20,516 | 2,861 | 23,377 |
| 51-52 | 5,903 | 10,750 | 16,653 | 2,041 | 18,694 |
| 52-53 | 5,973 | 12,471 | 18,444 | 4,535 | 22,979 |
| 53-54 | 6,283 | 11,765 | 18,048 | 4,163 | 22,211 |
| 54-55 | 6,420 | 12,783 | 19,203 | 4,392 | 23,602 |
| Average annual extractions | 6,363 | 11,683 | 18,046 | 3,639 | 21,685 |
| Safe yield 1938 ^b | 6,039 | 11,621 | 17,660 | 3,791 | 21,451 |
| Average difference ^c | + 324 | + 62 | + 386 | - 152 | + 234 |
| 1955-56 | 6,319 | 14,060 | 20,379 | 4,687 | 25,066 |
| 56-57 | 7,057 | 17,474 | 24,531 | 5,685 | 30,216 |
| 57-58 | 5,916 | 16,054 | 21,970 | 3,823 | 25,793 |
| 58-59 | 8,160 | 18,027 | 26,187 | 7,018 | 33,205 |
| 59-60 | 7,992 | 16,428 | 24,420 | 4,858 | 29,278 |
| 1960-61 | 7,141 | 18,796 | 25,937 | 3,342 ^d | 29,279 |
| 61-62 | 6,742 | 18,419 | 25,161 | 3,496 ^d | 28,657 |
| 62-63 | 8,084 | 16,630 | 24,714 | 5,268 | 29,982 |
| 63-64 | 7,937 | 17,469 | 25,406 | 4,778 | 30,184 |
| 64-65 | 7,450 | 17,682 | 25,132 | 3,592 ^d | 28,731 |
| 65-66 | 6,583 | 19,397 | 25,980 | 3,388 ^d | 29,368 |
| 66-67 | 5,096 | 17,241 | 22,337 | 3,369 | 25,706 |
| 67-68 | 7,059 | 19,984 | 27,043 | 7,031 | 34,074 |
| 68-69 | 8,397 | 15,490 | 23,887 | 4,511 | 28,398 |
| 69-70 | 8,422 | 18,710 | 27,132 | 5,445 | 32,577 |
| 1970-71 | 8,287 | 17,091 | 25,378 | 5,612 | 30,990 |
| 71-72 | 7,408 | 17,359 | 24,767 | 5,794 | 30,561 |
| Average annual extractions | 7,297 | 17,430 | 24,727 | 4,806 | 29,533 |
| Safe yield 1952 ^e | 7,489 | 17,843 | 25,332 | 5,290 | 30,622 |
| Average difference ^c | - 192 | - 413 | - 605 | - 484 | - 1,089 |

^a/ Excludes salvaged water pumped by City of Sierra Madre.

^b/ Effective 1944-45 through 1954-55 and excludes nonparty pumpage.

^c/ Extractions greater than safe yield: (+)

Extractions less than safe yield: (-).

^d/ Reduction in extraction by order of Watermaster.

^e/ Effective 1955-56 through present and excludes nonparty pumpage.

that exceed 120 percent of the "Decreed Right 1955", plus or minus exchange water. Three parties -- Huntington Library and Art Gallery, City of Sierra Madre, and Osborn Constructors -- appeared to exceed this limitation. In reality, the balances carried from the previous season cancelled any overextractions for these three parties; by applying the previous season's balances, then Lincoln Avenue Water Company exceeds this limitation.

Table 5 also shows the amount extracted by the City of Pasadena in the Monk Hill Basin and the Pasadena Subarea. However, the City's "Decreed Right 1955" is the total volume of water that it can take from the Western Unit; this, therefore, is separately recapitulated.

Five-Year Variation in Extraction

The Judgment also states that the total amount pumped or taken by any party in any 60 consecutive months (five years) cannot exceed the amount released to it by the Exchange Agreement and five times the Party's decreed right. Thus, the limit for all parties equals five times the "Decreed Right" 1955". Table 8 summarizes annual variation from the "Decreed Right 1955" and the cumulative five-year variation. Parties with negative (-) value under "Five-year variation" column exceeded this limitation.

Variations from Safe Yield

Table 9 summarizes annual extractions from 1950-51 to the present and compares average annual extraction with safe yield. It also shows years in which extractions exceeded safe yield. At present, average annual extractions in each subarea are less than safe yield, an occurrence that is undoubtedly aided by the above-average total precipitation during the last six years. However, the second lowest precipitation of record last year and below average for the past three years, has narrowed the gap.

V. ADMINISTRATIVE COSTS

Under the provisions of Section 4201, California Water Code, the cost of watermaster service is shared equally by the State and the parties to the Judgment.

Before each December 15, the Watermaster in cooperation with the Raymond Basin Advisory Board, prepares the budget for the fiscal year beginning the next July 1. The 1971-72 budget, approved by the Board on December 9, 1970, is shown in Table 10.

The Raymond Basin budget contains two sections (Table 11). Part "A" supports the cost of administering the Raymond Basin Judgment. Each party's share of that cost is directly proportionate to the party's "Decreed Right 1955".

Table 10. APPROVED BUDGET FOR 1971-72 SEASON

| PART "A" - Cost Other Than Exchange Water Program | | |
|--|--------------|-----------------|
| Salaries and wages | \$20,592 | |
| Operating expenses | 6,210 | |
| Retirement and compensation plus administration | <u>4,808</u> | |
| Total Amount | | \$31,610 |
| One-half payable by State | | \$15,805 |
| One-half payable by parties | | 15,805 |
| Less estimated carryover from 1970-71 | | <u>- 2,000</u> |
| Total collectible from parties | | \$13,805 |
| PART "B" - Cost of Exchange Water Program | | |
| Salaries and wages | \$ 80 | |
| Retirement and compensation plus administration | <u>20</u> | |
| Total Amount | | \$ 100 |
| One-half payable by State | | \$ 50 |
| One-half payable by participants in release and receipt of water | | 50 |
| TOTAL ESTIMATED COST OF Watermaster Service - July 1, 1971 through June 30, 1972 | | <u>\$31,710</u> |

Table 11. APPORTIONMENT OF SHARES IN 1971-72 BUDGET

Part "A"

| Party | "Decreed Right 1955", in acre-feet | Apportionment paid |
|---|---|--------------------|
| Alhambra, City of | 1,031 | \$ 464.80 |
| Arcadia, City of | 4,693 | 2,115.70 |
| California-American Water Company | 2,299 | 1,036.44 |
| Canyon Mutual Water Company | 127 | 57.25 |
| East Pasadena Water Company, Ltd. | 515 | 232.17 |
| Henry E. Huntington Library and Art Gallery | 262 | 118.11 |
| Kinneloa Irrigation District | 229 | 103.24 |
| La Canada Irrigation District | 100 | 45.08 |
| Las Flores Water Company | 249 | 112.25 |
| Lincoln Avenue Water Company | 567 | 255.62 |
| Mira Loma Mutual Water Company | 148 | 66.72 |
| Monrovia, City of | 951 | 428.73 |
| Osborn Constructors | 12 | 5.41 |
| Pasadena Cemetery Association | 91 | 41.02 |
| Pasadena, City of | 12,807 | 5,773.65 |
| Royal Laundry and Dry Cleaning Company | 110 | 49.59 |
| Rubio Canon Land and Water Association | 1,221 | 550.45 |
| San Gabriel County Water District | 1,091 | 491.84 |
| Sierra Madre, City of | 1,764 | 795.25 |
| Sunny Slope Water Company | 1,558 | 702.38 |
| Valley Water Company | <u>797</u> | <u>359.30</u> |
| TOTALS | 30,622 | \$ 13,805.00 |
| Part "B" | | |
| Party | Amount of water exchanged, in acre-feet | Amount paid |
| Kinneloa Irrigation District | 45 | \$ 25.00 |
| Royal Laundry and Dry Cleaning Company | 45 | <u>25.00</u> |
| TOTALS | | \$ 50.00 |

Part "B" supports the cost of operating the Raymond Basin Exchange Pool. Only the parties that participated in the Pool were charged for that cost. Each party's share of the 1971-72 budget is shown in Table 11. No penalties were assessed for late payments.

Income and expenditures under both parts of the budget appear in Table 12. Credit or Debit balances shown there are carried forward into the next fiscal year, as directed by Sections 4358 and 4406 of the State Water Code and Paragraph XIII of the Judgment.

Costs of Determining Salvage
Credit for City of Sierra Madre

On June 30, 1971, a deficit of \$7 remained in the special account established to pay the cost of determining amounts of water salvaged by the City of Sierra Madre. During the 1971-72 season, on request, the City deposited \$400 to this account. Expenditures during this season totaled \$389.31. A credit balance of \$3.69 remained in the account on June 30, 1972.

Table 12. STATEMENT OF 1971-72 INCOME AND EXPENDITURES

| Item | Parties | State | State and Parties |
|--|---------------------------------|--------------------|--------------------|
| <u>Income</u> | | | |
| From Part "A" of the budget | \$13,805.00 | \$15,805.00 | \$29,610.00 |
| From Part "B" of the budget | 50.00 | 50.00 | 100.00 |
| Cerryover from 1970-71 | <u>1,328.73^{a/}</u> | <u>0.00</u> | <u>1,328.73</u> |
| Total Income | \$15,183.73 | \$15,855.00 | \$31,038.73 |
| <u>Expenditures</u> | | | |
| From Part "A" of the budget | | | |
| Salaries and wages | \$10,123.77 | \$10,123.77 | \$20,247.54 |
| Operating expenses | | | |
| Miscellaneous indirect costs ^{b/} | 1,851.97 | 1,851.96 | 3,703.93 |
| Travel in State | 69.59 | 69.60 | 139.19 |
| Mobil Equipment rental | 231.04 | 231.04 | 462.08 |
| Printing plates and covers for annual report | 57.47 | 57.48 | 114.95 |
| Electronic machine computing | 986.09 | 986.09 | 1,972.18 |
| From Part "B" of the budget | | | |
| Salaries and wages | 40.00 | 40.00 | 80.00 |
| Operating expenses | <u>10.00</u> | <u>10.00</u> | <u>20.00</u> |
| Total Expenditures | <u>\$13,369.93</u> | <u>\$13,369.94</u> | <u>\$26,739.87</u> |
| BALANCE | <u>\$ 1,813.80^{c/}</u> | <u>\$ 2,485.06</u> | <u>\$ 4,298.86</u> |
| ^{a/} Adjusted for 1970-71 delayed charges and credits. ^{b/} Rent, utilities, auto rental, janitorial services, communications, retirement, employees' health plan, and workmen's compensation insurance. ^{c/} Subject to delayed charges and credits. | | | |

APPENDIX A

MEAN DAILY DISCHARGE AT SURFACE RUNOFF STATIONS OPERATED BY THE WATERMASTER 1971-72 WATERMASTER YEAR

APPENDIX A: MEAN DAILY DISCHARGE AT SURFACE RUNOFF STATIONS OPERATED BY THE WATERMASTER. 1971-72 WATERMASTER YEAR

| STATION: ARCADIA WASH | | | | | | | | | | | | | STATION NO. | | WATERMASTER YEAR | |
|--|-------|------|-------|------|------|-------|------|------|------|-------|------|------|-------------|--|------------------|--|
| MEAN DAILY DISCHARGE in second-feet | | | | | | | | | | | | | 75450 | | 1971-72 | |
| DAY | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | DAY | | | |
| 1 | .20 | .09 | .13 | .14 | .16 | .09 | .15 | .11 | .15 | .18 | .13 | .11 | 1 | | | |
| 2 | .16 | .11 | .14 | .15 | .17 | .07 | .13 | .08 | .17 | .17 | .07 | .15 | 2 | | | |
| 3 | .21 | .17 | .17 | .16 | .15 | .13 | .14 | .07 | .18 | .19 | .09 | .15 | 3 | | | |
| 4 | .14 | .10 | .13 | .17 | .14 | .11 | .13 | .08 | .20 | .18 | .10 | .15 | 4 | | | |
| 5 | .14 | .10 | .16 | .14 | .14 | .09 | .13 | .10 | .20 | .18 | .10 | .15 | 5 | | | |
| 6 | .15 | .09 | .15 | .18 | .14 | .10 | .12 | .08 | .20 | .17 | .10 | .14 | 6 | | | |
| 7 | .22 | .09 | .15 | .14 | .11 | .11 | .12 | .09 | .19 | .15 | .10 | .12 | 7 | | | |
| 8 | .25 | .08 | .17 | .18 | .17 | .11 | .12 | .09 | .18 | .17 | .11 | .12 | 8 | | | |
| 9 | .26 | .08 | .17 | .15 | .16 | .12 | .12 | .09 | .20 | .17 | .12 | .11 | 9 | | | |
| 10 | .24 | .08 | .18 | .15 | .18 | .13 | .14 | .08 | .20 | .18 | .12 | .09 | 10 | | | |
| 11 | .31 | .10 | .18 | .14 | .20 | .13 | .11 | .08 | .19 | .18 | .11 | .09 | 11 | | | |
| 12 | .31 | .09 | .16 | .16 | .19 | .13 | .13 | .08 | .18 | .17 | .11 | .11 | 12 | | | |
| 13 | .31 | .09 | .17 | .13 | .15 | .15 | .14 | .06 | .19 | .18 | .10 | .11 | 13 | | | |
| 14 | .30 | .09 | .15 | .16 | .14 | .11 | .13 | .09 | .16 | .19 | .10 | .10 | 14 | | | |
| 15 | .29 | .09 | .15 | .18 | .15 | .09 | .13 | .09 | .17 | .17 | .10 | .11 | 15 | | | |
| 16 | .31 | .09 | .16 | .21 | .12 | .09 | .13 | .11 | .16 | .17 | .10 | .11 | 16 | | | |
| 17 | .24 | .09 | .17 | .16 | .11 | .09 | .13 | .11 | .16 | .21 | .10 | .13 | 17 | | | |
| 18 | .29 | .12 | .15 | .17 | .10 | .08 | .12 | .10 | .14 | .25 | .11 | .13 | 18 | | | |
| 19 | .24 | .12 | .14 | .13 | .10 | .08 | .13 | .11 | .13 | .18 | .11 | .14 | 19 | | | |
| 20 | .27 | .11 | .16 | .14 | .10 | .07 | .15 | .12 | .15 | .16 | .10 | .13 | 20 | | | |
| 21 | .27 | .11 | .16 | .15 | .12 | .08 | .13 | .11 | .15 | .15 | .10 | .14 | 21 | | | |
| 22 | .26 | .09 | .14 | .17 | .14 | .11 | .12 | .15 | .15 | .17 | .10 | .18 | 22 | | | |
| 23 | .21 | .10 | .16 | .18 | .14 | .12 | .11 | .13 | .16 | .17 | .10 | .17 | 23 | | | |
| 24 | .19 | .10 | .14 | .23 | .13 | .45 | .12 | .14 | .16 | .19 | .11 | .16 | 24 | | | |
| 25 | .18 | .10 | .16 | .15 | .14 | .49 | .13 | .13 | .15 | .20 | .11 | .16 | 25 | | | |
| 26 | .17 | .09 | .15 | .14 | .13 | .33 | .14 | .17 | .15 | .22 | .11 | .14 | 26 | | | |
| 27 | .13 | .10 | .14 | .14 | .14 | .17 | .10 | .12 | .18 | .22 | .12 | .14 | 27 | | | |
| 28 | .15 | .11 | .16 | .14 | .13 | .47 | .10 | .14 | .17 | .22 | .13 | .14 | 28 | | | |
| 29 | .14 | .12 | .18 | .15 | .14 | .23 | .10 | .17 | .16 | .21 | .15 | .18 | 29 | | | |
| 30 | .17 | .12 | .19 | .15 | .14 | .14 | .10 | .10 | .20 | .21 | .15 | .19 | 30 | | | |
| 31 | .11 | .13 | | .16 | | .13 | .11 | | .21 | | .16 | | 31 | | | |
| MEAN | 2.6 | .5 | 1.1 | 1.4 | 1.1 | 6.8 | .7 | .6 | 1.5 | 1.7 | .6 | .9 | MEAN | | | |
| MAX. | 5.2 | .7 | 1.6 | 4.9 | 6.6 | 59.3 | 1.0 | 1.3 | 2.5 | 6.0 | 1.2 | 1.9 | MAX. | | | |
| MIN. | .4 | .4 | .8 | .8 | .5 | .4 | .5 | .3 | .8 | 1.1 | .4 | .5 | MIN. | | | |
| ACFT | 102.1 | 31.4 | 66.1 | 84.3 | 65.8 | 416.5 | 45.3 | 35.7 | 90.7 | 100.4 | 36.8 | 53.1 | ACFT | | | |

WATERMASTER YEAR SUMMARY

| MEAN DISCHARGE | MAXIMUM | | | | | MINIMUM | | | | | TOTAL ACRE-Feet |
|-------------------|-----------|---------|----|-----|------|-----------|---------|----|-----|------|--------------------|
| | DISCHARGE | GAGE HT | MO | DAY | TIME | DISCHARGE | GAGE HT | MO | DAY | TIME | |
| 1.63 | 294.85 | 1.20 | 12 | 25 | 133 | .20 | .04 | 2 | 12 | 640 | 1188.40 |

| STATION: ARROYO SECO | | | | | | | | | | STATION NO. | | WATERMASTER YEAR | |
|--|---------|---------|-------|------|------|-------|------|------|---------|-------------|---------|------------------|------|
| MEAN DAILY DISCHARGE in second-feet | | | | | | | | | | 62250 | | 1971-72 | |
| DAY | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | DAY |
| 1 | NO FLOW | NO FLOW | .21 | .06 | .22 | .05 | .24 | .00 | .00 | .03 | .01 | NO FLOW | 1 |
| 2 | NO FLOW | NO FLOW | .17 | .12 | .19 | .08 | .20 | .00 | .00 | .02 | .05 | NO FLOW | 2 |
| 3 | NO FLOW | NO FLOW | .18 | .08 | .19 | .11 | .15 | .10 | .00 | .02 | .02 | NO FLOW | 3 |
| 4 | NO FLOW | NO FLOW | .18 | .09 | .20 | .03 | .13 | .12 | NO FLOW | NO FLOW | .02 | NO FLOW | 4 |
| 5 | NO FLOW | NO FLOW | .18 | .14 | .19 | .01 | .07 | .03 | .04 | NO FLOW | .02 | NO FLOW | 5 |
| 6 | NO FLOW | NO FLOW | .17 | .19 | .19 | .05 | .05 | .02 | .08 | NO FLOW | .02 | NO FLOW | 6 |
| 7 | NO FLOW | NO FLOW | .17 | .19 | .20 | .08 | .06 | .00 | .02 | NO FLOW | .00 | NO FLOW | 7 |
| 8 | NO FLOW | NO FLOW | .17 | .20 | .21 | .07 | .06 | .04 | .01 | NO FLOW | NO FLOW | NO FLOW | 8 |
| 9 | NO FLOW | NO FLOW | .17 | .19 | .21 | .07 | .05 | .16 | NO FLOW | NO FLOW | NO FLOW | NO FLOW | 9 |
| 10 | NO FLOW | .21 | .17 | .19 | .20 | .19 | .05 | .06 | .01 | NO FLOW | NO FLOW | NO FLOW | 10 |
| 11 | NO FLOW | .20 | .17 | .14 | .20 | .09 | .02 | .04 | .05 | NO FLOW | .01 | NO FLOW | 11 |
| 12 | NO FLOW | .20 | .17 | .08 | .20 | .04 | .01 | .07 | .03 | NO FLOW | NO FLOW | NO FLOW | 12 |
| 13 | NO FLOW | .19 | .16 | .07 | .20 | .05 | .02 | .05 | .04 | .01 | NO FLOW | .01 | 13 |
| 14 | NO FLOW | .14 | .16 | .06 | .20 | .01 | .02 | .04 | .03 | .00 | NO FLOW | NO FLOW | 14 |
| 15 | NO FLOW | .14 | .16 | .06 | .19 | .00 | .01 | .03 | .01 | .02 | NO FLOW | NO FLOW | 15 |
| 16 | NO FLOW | .19 | .16 | .15 | .14 | .01 | .04 | .04 | .03 | .02 | NO FLOW | NO FLOW | 16 |
| 17 | NO FLOW | .19 | .17 | .19 | .20 | .00 | .03 | .04 | .01 | .02 | NO FLOW | NO FLOW | 17 |
| 18 | NO FLOW | .22 | .18 | .09 | .20 | .00 | .01 | .01 | NO FLOW | .01 | NO FLOW | NO FLOW | 18 |
| 19 | NO FLOW | .22 | .18 | .05 | .21 | .00 | .01 | .00 | NO FLOW | .03 | NO FLOW | NO FLOW | 19 |
| 20 | NO FLOW | .23 | .18 | .07 | .22 | .00 | .00 | .00 | NO FLOW | .01 | NO FLOW | NO FLOW | 20 |
| 21 | NO FLOW | .23 | .17 | .04 | .20 | .00 | .00 | .00 | NO FLOW | .00 | NO FLOW | NO FLOW | 21 |
| 22 | NO FLOW | .23 | .16 | .02 | .22 | .29 | .00 | .00 | NO FLOW | NO FLOW | NO FLOW | NO FLOW | 22 |
| 23 | NO FLOW | .23 | .16 | .01 | .20 | .31 | .00 | .09 | .05 | NO FLOW | NO FLOW | NO FLOW | 23 |
| 24 | NO FLOW | .22 | .17 | .16 | .20 | .64 | .00 | .00 | .02 | .01 | NO FLOW | NO FLOW | 24 |
| 25 | NO FLOW | .22 | .12 | .12 | .21 | .79 | .00 | .00 | NO FLOW | .01 | NO FLOW | NO FLOW | 25 |
| 26 | NO FLOW | .22 | .18 | .16 | .20 | .74 | .00 | .00 | NO FLOW | .00 | NO FLOW | NO FLOW | 26 |
| 27 | NO FLOW | .25 | .15 | .22 | .16 | .74 | .02 | .00 | NO FLOW | NO FLOW | NO FLOW | NO FLOW | 27 |
| 28 | NO FLOW | .25 | .16 | .19 | .19 | .64 | .00 | .00 | NO FLOW | NO FLOW | NO FLOW | NO FLOW | 28 |
| 29 | NO FLOW | .24 | .17 | .17 | .19 | .48 | .00 | .00 | NO FLOW | NO FLOW | NO FLOW | NO FLOW | 29 |
| 30 | NO FLOW | .25 | .16 | .17 | .17 | .32 | .00 | .00 | NO FLOW | .00 | NO FLOW | .00 | 30 |
| 31 | NO FLOW | .22 | | .17 | | .26 | .00 | | .01 | | .00 | | 31 |
| MEAN | 0 | 1.1 | .9 | .8 | 1.3 | 5.6 | .2 | .2 | .1 | 0 | 0 | 0 | MEAN |
| MAX. | 0 | 2.1 | 1.4 | 1.7 | 1.6 | 35.0 | 1.9 | 1.7 | .4 | .1 | .2 | 0 | MAX. |
| MIN. | 0 | 0 | .8 | 0 | .9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | MIN. |
| ACFT | 0 | 66.2 | 52.4 | 47.5 | 74.8 | 342.1 | 14.1 | 12.7 | 4.4 | 2.0 | 1.5 | .1 | ACFT |

WATERMASTER YEAR SUMMARY

| MEAN DISCHARGE | MAXIMUM | | | | | MINIMUM | | | | | TOTAL ACRE-Feet |
|-------------------|-----------|---------|----|-----|------|-----------|---------|----|-----|------|--------------------|
| | DISCHARGE | GAGE HT | MO | DAY | TIME | DISCHARGE | GAGE HT | MO | DAY | TIME | |
| .85 | 72.27 | 1.14 | 12 | 24 | 2002 | 0 | 0 | 7 | 1 | 0 | 617.80 |

APPENDIX A (continued)

| STATION: BROADWAY DRAIN | | | | | | | | | | | | | |
|--|-------|------|-------|-------|-------|-------|------|------|------|-------------|------------------|------|------|
| MEAN DAILY DISCHARGE in second-feet | | | | | | | | | | | | | |
| | | | | | | | | | | STATION NO. | WATERMASTER YEAR | | |
| | | | | | | | | | | 75135 | 1971-72 | | |
| DAY | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | DAY |
| 1 | .14 | .14 | .15 | .17 | .18 | .14 | .20 | .09 | .12 | .12 | .13 | .10 | 1 |
| 2 | .21 | .13 | .16 | .19 | .15 | .16 | .20 | .10 | .13 | .12 | .14 | .12 | 2 |
| 3 | .18 | .12 | .17 | .18 | .15 | .21 | .17 | .11 | .13 | .10 | .13 | .12 | 3 |
| 4 | .14 | .14 | .16 | .19 | .15 | .16 | .12 | .09 | .15 | .10 | .13 | .13 | 4 |
| 5 | .17 | .11 | .16 | .16 | .14 | .16 | .12 | .10 | .15 | .11 | .13 | .11 | 5 |
| 6 | .17 | .13 | .17 | .18 | .14 | .14 | .12 | .09 | .13 | .11 | .14 | .11 | 6 |
| 7 | .16 | .10 | .19 | .19 | .15 | .14 | .12 | .10 | .16 | .11 | .13 | .15 | 7 |
| 8 | .15 | .12 | .18 | .19 | .15 | .13 | .13 | .10 | .08 | .11 | .12 | .14 | 8 |
| 9 | .15 | .13 | .18 | .18 | .15 | .14 | .11 | .06 | .11 | .13 | .11 | .11 | 9 |
| 10 | .16 | .11 | .19 | .18 | .15 | .13 | .11 | .08 | .11 | .12 | .11 | .12 | 10 |
| 11 | .16 | .11 | .17 | .17 | .16 | .11 | .11 | .10 | .11 | .12 | .11 | .12 | 11 |
| 12 | .16 | .14 | .15 | .18 | .23 | .13 | .11 | .10 | .11 | .10 | .11 | .11 | 12 |
| 13 | .16 | .13 | .15 | .18 | .15 | .18 | .13 | .10 | .10 | .12 | .11 | .10 | 13 |
| 14 | .16 | .11 | .15 | .19 | .14 | .17 | .12 | .09 | .08 | .14 | .12 | .10 | 14 |
| 15 | .15 | .13 | .15 | .19 | .14 | .17 | .11 | .06 | .09 | .14 | .11 | .10 | 15 |
| 16 | .15 | .12 | .17 | .21 | .15 | .17 | .10 | .05 | .09 | .14 | .11 | .10 | 16 |
| 17 | .15 | .14 | .16 | .18 | .15 | .16 | .14 | .03 | .10 | .12 | .11 | .10 | 17 |
| 18 | .15 | .18 | .15 | .18 | .16 | .16 | .19 | .05 | .10 | .11 | .11 | .10 | 18 |
| 19 | .17 | .24 | .16 | .18 | .17 | .15 | .16 | .06 | .09 | .14 | .13 | .10 | 19 |
| 20 | .17 | .18 | .14 | .18 | .17 | .16 | .15 | .05 | .08 | .14 | .13 | .10 | 20 |
| 21 | .15 | .17 | .16 | .18 | .16 | .18 | .16 | .05 | .08 | .14 | .13 | .13 | 21 |
| 22 | .14 | .15 | .16 | .18 | .16 | .35 | .15 | .01 | .08 | .14 | .13 | .10 | 22 |
| 23 | .14 | .14 | .16 | .18 | .16 | .34 | .14 | .05 | .10 | .14 | .13 | .10 | 23 |
| 24 | .14 | .10 | .15 | .18 | .16 | .64 | .15 | .10 | .09 | .12 | .13 | .11 | 24 |
| 25 | .14 | .11 | .16 | .18 | .15 | .40 | .11 | .10 | .09 | .13 | .13 | .12 | 25 |
| 26 | .14 | .12 | .18 | .18 | .14 | .23 | .11 | .12 | .10 | .14 | .12 | .11 | 26 |
| 27 | .14 | .12 | .16 | .18 | .16 | .46 | .14 | .12 | .09 | .14 | .13 | .09 | 27 |
| 28 | .14 | .12 | .14 | .18 | .15 | .31 | .14 | .13 | .09 | .12 | .14 | .10 | 28 |
| 29 | .15 | .11 | .15 | .18 | .15 | .20 | .10 | .12 | .09 | .11 | .13 | .10 | 29 |
| 30 | .15 | .12 | .18 | .18 | .14 | .20 | .09 | .12 | .12 | .13 | .12 | .10 | 30 |
| 31 | .16 | .12 | | .19 | | .20 | .10 | | .12 | | .11 | | 31 |
| MEAN | 1.6 | 1.3 | 2.0 | 2.7 | 1.8 | 7.0 | 1.3 | .4 | .6 | .9 | .8 | .7 | MEAN |
| MAX. | 4.2 | 6.0 | 3.3 | 4.9 | 8.1 | 55.2 | 3.5 | 1.0 | 3.0 | 2.0 | 1.2 | 4.1 | MAX. |
| MIN. | 1.0 | .5 | 1.2 | 2.0 | 1.1 | .5 | .3 | 0 | .2 | .4 | .5 | .4 | MIN. |
| ACFT | 111.0 | 78.0 | 118.2 | 166.8 | 106.7 | 429.0 | 77.3 | 22.8 | 38.3 | 52.7 | 49.9 | 39.4 | ACFT |

WATERMASTER YEAR SUMMARY

| MEAN | MAXIMUM | | | | | MINIMUM | | | | | TOTAL |
|-----------|-----------|---------|----|-----|------|-----------|---------|----|-----|------|-----------|
| DISCHARGE | DISCHARGE | GAGE HT | MO | DAY | TIME | DISCHARGE | GAGE HT | MO | DAY | TIME | ACRE-Feet |
| 1.77 | 234.13 | 1.67 | 12 | 24 | 1223 | 0 | 0 | 2 | 22 | 1055 | 1290.10 |

| STATION: EATON CREEK NEAR PASADENA | | | | | | | | | | | | | |
|--|------|------|-------|------|------|-------|------|------|------|-------------|------------------|------|------|
| MEAN DAILY DISCHARGE in second-feet | | | | | | | | | | | | | |
| | | | | | | | | | | STATION NO. | WATERMASTER YEAR | | |
| | | | | | | | | | | 75360 | 1971-72 | | |
| DAY | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | DAY |
| 1 | .11 | .00 | .21 | .13 | .06 | .09 | .38 | .07 | .03 | .10 | .12 | .10 | 1 |
| 2 | .16 | .06 | .20 | .12 | .07 | .10 | .36 | .05 | .07 | .10 | .12 | .09 | 2 |
| 3 | .17 | .07 | .18 | .15 | .07 | .12 | .30 | .00 | .07 | .10 | .12 | .08 | 3 |
| 4 | .08 | .07 | .18 | .17 | .07 | .14 | .26 | .06 | .08 | .10 | .12 | .10 | 4 |
| 5 | .00 | .07 | .18 | .17 | .07 | .15 | .25 | .14 | .08 | .10 | .12 | .09 | 5 |
| 6 | .00 | .08 | .18 | .15 | .07 | .15 | .23 | .17 | .08 | .10 | .12 | .08 | 6 |
| 7 | .00 | .09 | .18 | .12 | .07 | .13 | .20 | .16 | .08 | .13 | .12 | .08 | 7 |
| 8 | .00 | .08 | .12 | .12 | .07 | .14 | .18 | .15 | .08 | .12 | .12 | .08 | 8 |
| 9 | .00 | .09 | .18 | .12 | .07 | .15 | .17 | .15 | .08 | .10 | .12 | .06 | 9 |
| 10 | .00 | .10 | .18 | .12 | .07 | .14 | .16 | .14 | .08 | .10 | .12 | .07 | 10 |
| 11 | .00 | .10 | .16 | .12 | .07 | .13 | .15 | .07 | .08 | .10 | .12 | .08 | 11 |
| 12 | .00 | .09 | .16 | .12 | .08 | .15 | .15 | .14 | .09 | .10 | .12 | .09 | 12 |
| 13 | .00 | .09 | .16 | .12 | .09 | .15 | .15 | .15 | .09 | .13 | .12 | .13 | 13 |
| 14 | .00 | .08 | .15 | .12 | .09 | .15 | .14 | .15 | .09 | .12 | .12 | .13 | 14 |
| 15 | .00 | .08 | .15 | .12 | .12 | .15 | .14 | .15 | .09 | .11 | .12 | .12 | 15 |
| 16 | .00 | .08 | .16 | .12 | .12 | .15 | .13 | .16 | .09 | .12 | .12 | .12 | 16 |
| 17 | .00 | .09 | .16 | .12 | .12 | .15 | .12 | .17 | .09 | .12 | .12 | .12 | 17 |
| 18 | .00 | .09 | .17 | .12 | .12 | .16 | .12 | .16 | .09 | .13 | .12 | .12 | 18 |
| 19 | .00 | .08 | .18 | .12 | .12 | .16 | .12 | .16 | .10 | .14 | .13 | .16 | 19 |
| 20 | .00 | .08 | .17 | .12 | .12 | .16 | .12 | .07 | .10 | .12 | .15 | .16 | 20 |
| 21 | .00 | .07 | .16 | .12 | .12 | .14 | .11 | .41 | .10 | .12 | .17 | .13 | 21 |
| 22 | .00 | .07 | .16 | .12 | .12 | .15 | .11 | .00 | .10 | .12 | .18 | .11 | 22 |
| 23 | .00 | .07 | .16 | .12 | .12 | .14 | .11 | .00 | .10 | .12 | .18 | .10 | 23 |
| 24 | .00 | .08 | .16 | .12 | .12 | .66 | .10 | .00 | .10 | .12 | .18 | .10 | 24 |
| 25 | .00 | .08 | .17 | .12 | .12 | .75 | .10 | .00 | .10 | .12 | .16 | .10 | 25 |
| 26 | .00 | .07 | .16 | .12 | .12 | .74 | .10 | .00 | .10 | .12 | .14 | .11 | 26 |
| 27 | .00 | .07 | .16 | .12 | .12 | .73 | .09 | .00 | .10 | .12 | .11 | .11 | 27 |
| 28 | .00 | .07 | .16 | .11 | .12 | .66 | .09 | .00 | .10 | .12 | .10 | .11 | 28 |
| 29 | .00 | .08 | .16 | .09 | .12 | .59 | .08 | .00 | .10 | .12 | .10 | .12 | 29 |
| 30 | .00 | .08 | .16 | .09 | .12 | .49 | .08 | | .10 | .12 | .10 | .11 | 30 |
| 31 | .00 | .09 | | .10 | | .44 | .08 | | .10 | | .10 | | 31 |
| MEAN | .1 | .2 | 1.1 | .6 | .4 | 3.4 | 1.0 | .7 | .2 | .5 | .7 | .4 | MEAN |
| MAX. | 1.1 | .4 | 2.0 | 1.1 | .6 | 22.9 | 4.0 | 6.8 | .3 | .9 | 1.2 | 1.0 | MAX. |
| MIN. | 0 | 0 | .9 | .2 | .1 | .2 | .1 | 0 | .1 | .3 | .3 | .1 | MIN. |
| ACFT | 5.4 | 9.8 | 63.2 | 37.8 | 22.3 | 210.8 | 61.6 | 40.1 | 14.5 | 30.5 | 40.1 | 24.4 | ACFT |

WATERMASTER YEAR SUMMARY

| MEAN | MAXIMUM | | | | | MINIMUM | | | | | TOTAL |
|-----------|-----------|---------|----|-----|------|-----------|---------|----|-----|------|-----------|
| DISCHARGE | DISCHARGE | GAGE HT | MO | DAY | TIME | DISCHARGE | GAGE HT | MO | DAY | TIME | ACRE-Feet |
| .77 | 83.25 | 1.65 | 12 | 24 | 1536 | 0 | 0 | 7 | 3 | 2402 | 561.00 |

APPENDIX A (continued)

| STATION: EATON WASH | | | | | | | | | | | | | STATION NO. 75300 | | WATERMASTER YEAR 1971-72 | |
|--|------|------|-------|------|-------|-------|------|------|------|------|------|------|-------------------|--|--------------------------|--|
| MEAN DAILY DISCHARGE in second-foot | | | | | | | | | | | | | | | | |
| DAY | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | DAY | | | |
| 1 | .05 | .02 | .10 | .10 | .15 | .16 | .04 | .05 | .07 | .06 | .05 | .06 | 1 | | | |
| 2 | .15 | .07 | .09 | .10 | .14 | .22 | .03 | .06 | .08 | .06 | .08 | .08 | 2 | | | |
| 3 | .06 | .08 | .09 | .10 | .13 | .14 | .04 | .06 | .09 | .07 | .06 | .05 | 3 | | | |
| 4 | .06 | .04 | .07 | .10 | .15 | .19 | .03 | .06 | .07 | .08 | .07 | .06 | 4 | | | |
| 5 | .04 | .09 | .07 | .09 | .13 | .18 | .04 | .09 | .07 | .07 | .06 | .06 | 5 | | | |
| 6 | .05 | .08 | .06 | .06 | .13 | .18 | .04 | .05 | .08 | .06 | .05 | .09 | 6 | | | |
| 7 | .04 | .08 | .05 | .07 | .11 | .17 | .04 | .06 | .08 | .05 | .05 | .08 | 7 | | | |
| 8 | .01 | .09 | .07 | .06 | .15 | .17 | .04 | .07 | .07 | .04 | .06 | .10 | 8 | | | |
| 9 | .05 | .04 | .07 | .05 | .14 | .18 | .05 | .06 | .07 | .04 | .06 | .06 | 9 | | | |
| 10 | .05 | .09 | .08 | .05 | .12 | .12 | .05 | .07 | .09 | .04 | .07 | .04 | 10 | | | |
| 11 | .05 | .09 | .05 | .06 | .22 | .07 | .05 | .06 | .08 | .05 | .07 | .04 | 11 | | | |
| 12 | .05 | .09 | .06 | .06 | .20 | .05 | .05 | .05 | .08 | .05 | .06 | .06 | 12 | | | |
| 13 | .05 | .08 | .07 | .06 | .18 | .10 | .05 | .05 | .08 | .05 | .05 | .06 | 13 | | | |
| 14 | .05 | .08 | .08 | .05 | .17 | .05 | .05 | .07 | .08 | .06 | .05 | .05 | 14 | | | |
| 15 | .06 | .08 | .09 | .04 | .17 | .05 | .04 | .07 | .08 | .03 | .06 | .06 | 15 | | | |
| 16 | .06 | .09 | .09 | .06 | .17 | .06 | .04 | .08 | .07 | .03 | .08 | .07 | 16 | | | |
| 17 | .06 | .10 | .09 | .08 | .17 | .06 | .05 | .08 | .06 | .04 | .06 | .05 | 17 | | | |
| 18 | .06 | .10 | .08 | .08 | .18 | .04 | .04 | .08 | .06 | .06 | .06 | .04 | 18 | | | |
| 19 | .06 | .09 | .06 | .08 | .19 | .04 | .04 | .06 | .06 | .07 | .08 | .06 | 19 | | | |
| 20 | .06 | .09 | .08 | .05 | .19 | .06 | .04 | .05 | .07 | .05 | .04 | .06 | 20 | | | |
| 21 | .07 | .08 | .08 | .03 | .19 | .08 | .04 | .05 | .07 | .05 | .05 | .05 | 21 | | | |
| 22 | .06 | .09 | .08 | .03 | .18 | .28 | .04 | .07 | .07 | .04 | .06 | .07 | 22 | | | |
| 23 | .07 | .10 | .08 | .03 | .18 | .04 | .03 | .07 | .08 | .03 | .06 | .06 | 23 | | | |
| 24 | .06 | .10 | .08 | .09 | .18 | .50 | .03 | .07 | .07 | .04 | .07 | .05 | 24 | | | |
| 25 | .06 | .10 | .08 | .06 | .18 | .34 | .05 | .07 | .06 | .06 | .08 | .05 | 25 | | | |
| 26 | .06 | .12 | .08 | .06 | .18 | .07 | .04 | .07 | .06 | .05 | .08 | .05 | 26 | | | |
| 27 | .06 | .11 | .07 | .06 | .17 | .36 | .05 | .06 | .07 | .04 | .07 | .06 | 27 | | | |
| 28 | .06 | .11 | .07 | .08 | .17 | .19 | .05 | .08 | .07 | .04 | .06 | .07 | 28 | | | |
| 29 | .06 | .11 | .09 | .09 | .17 | .06 | .04 | .08 | .06 | .04 | .05 | .05 | 29 | | | |
| 30 | .06 | .11 | .09 | .09 | .16 | .05 | .05 | .09 | .09 | .03 | .06 | .06 | 30 | | | |
| 31 | .06 | .12 | | .14 | | .04 | .04 | | .07 | | .07 | | 31 | | | |
| MEAN | .02 | .04 | .02 | .04 | 2.0 | 4.6 | .1 | .2 | .2 | .1 | .2 | .2 | MEAN | | | |
| MAX. | 1.4 | 1.0 | .5 | 2.7 | 11.1 | 43.8 | .1 | .5 | .4 | 1.1 | .6 | .8 | MAX. | | | |
| MIN. | 0 | 0 | .1 | 0 | .6 | 0 | 0 | .1 | .1 | 0 | .1 | 0 | MIN. | | | |
| ACFT | 10.0 | 25.5 | 14.6 | 21.8 | 121.7 | 281.2 | 3.5 | 10.8 | 14.0 | 7.8 | 11.0 | 11.5 | ACFT | | | |

WATERMASTER YEAR SUMMARY

| MEAN DISCHARGE | MAXIMUM | | | | | MINIMUM | | | | | TOTAL ACRE-Feet |
|----------------|-----------|---------|----|-----|------|-----------|---------|----|-----|------|-----------------|
| | DISCHARGE | GAGE HT | NO | DAY | TIME | DISCHARGE | GAGE HT | NO | DAY | TIME | |
| .73 | 194.72 | .98 | 12 | 24 | 1119 | 0 | 0 | 8 | 21 | 2243 | 533.40 |

| STATION: FLINT WASH | | | | | | | | | | STATION NO. | | WATERMASTER YEAR | |
|---------------------|------|------|-------|-------|-------|-------|------|------|---------|-------------|------|------------------|------|
| | | | | | | | | | | 62190 | | 1971-72 | |
| DAY | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | DAY |
| 1 | .11 | .14 | .09 | .12 | .18 | .20 | .13 | .14 | .05 | .06 | .10 | .00 | 1 |
| 2 | .07 | .13 | .09 | .10 | .13 | .31 | .27 | .11 | .05 | .03 | .11 | .05 | 2 |
| 3 | .04 | .13 | .04 | .09 | .12 | .24 | .23 | .11 | .05 | .15 | .10 | .10 | 3 |
| 4 | .09 | .11 | .08 | .11 | .22 | .21 | .16 | .13 | .03 | .14 | .12 | .11 | 4 |
| 5 | .08 | .10 | .04 | .09 | .24 | .21 | .16 | .18 | .01 | .15 | .11 | .12 | 5 |
| 6 | .04 | .13 | .09 | .04 | .24 | .21 | .16 | .15 | .00 | .17 | .12 | .09 | 6 |
| 7 | .09 | .12 | .07 | .10 | .23 | .23 | .16 | .13 | NO FLOW | .16 | .13 | .27 | 7 |
| 8 | .08 | .16 | .08 | .11 | .23 | .22 | .17 | .14 | NO FLOW | .17 | .13 | .19 | 8 |
| 9 | .07 | .18 | .09 | .12 | .22 | .22 | .17 | .11 | NO FLOW | .18 | .13 | .10 | 9 |
| 10 | .08 | .15 | .10 | .11 | .23 | .21 | .16 | .11 | NO FLOW | .17 | .12 | .09 | 10 |
| 11 | .10 | .15 | .08 | .10 | .36 | .21 | .16 | .10 | NO FLOW | .18 | .12 | .05 | 11 |
| 12 | .12 | .15 | .09 | .09 | .66 | .23 | .15 | .10 | NO FLOW | .25 | .10 | .00 | 12 |
| 13 | .11 | .11 | .11 | .10 | .30 | .29 | .16 | .11 | NO FLOW | .19 | .11 | .00 | 13 |
| 14 | .10 | .17 | .10 | .11 | .29 | .21 | .18 | .11 | NO FLOW | .29 | .12 | .02 | 14 |
| 15 | .10 | .09 | .10 | .10 | .29 | .21 | .16 | .10 | .06 | .33 | .29 | .02 | 15 |
| 16 | .10 | .10 | .10 | .24 | .29 | .21 | .15 | .10 | NO FLOW | .33 | .10 | .02 | 16 |
| 17 | .09 | .10 | .11 | .06 | .29 | .21 | .18 | .10 | NO FLOW | .28 | .16 | .02 | 17 |
| 18 | .09 | .11 | .11 | .07 | .29 | .21 | .18 | .10 | NO FLOW | .34 | .27 | .02 | 18 |
| 19 | .12 | .11 | .11 | .10 | .28 | .21 | .13 | .10 | NO FLOW | .42 | .34 | .05 | 19 |
| 20 | .10 | .11 | .11 | .12 | .28 | .21 | .14 | .09 | NO FLOW | .40 | .28 | .04 | 20 |
| 21 | .11 | .14 | .11 | .19 | .28 | .21 | .13 | .09 | NO FLOW | .41 | .17 | .03 | 21 |
| 22 | .12 | .11 | .11 | .08 | .28 | 1.05 | .13 | .07 | NO FLOW | .41 | .10 | .13 | 22 |
| 23 | .11 | .09 | .10 | .10 | .29 | .39 | .12 | .08 | NO FLOW | .41 | .09 | .09 | 23 |
| 24 | .10 | .11 | .10 | .67 | .29 | 2.04 | .12 | .04 | NO FLOW | .41 | .09 | .10 | 24 |
| 25 | .11 | .13 | .10 | .23 | .30 | 1.62 | .11 | .04 | NO FLOW | .41 | .10 | .10 | 25 |
| 26 | .10 | .15 | .11 | .20 | .28 | .74 | .11 | .05 | NO FLOW | .38 | .10 | .10 | 26 |
| 27 | .11 | .26 | .04 | .19 | .28 | 1.56 | .11 | .06 | NO FLOW | .38 | .10 | .14 | 27 |
| 28 | .12 | .14 | .02 | .17 | .28 | 1.21 | .08 | .04 | NO FLOW | .37 | .07 | .07 | 28 |
| 29 | .11 | .17 | .00 | .17 | .28 | .54 | .05 | .05 | NO FLOW | .31 | .02 | .05 | 29 |
| 30 | .12 | .13 | .10 | .17 | .28 | .43 | .13 | | NO FLOW | .28 | .01 | .05 | 30 |
| 31 | .13 | .15 | | .17 | | .36 | .14 | | .02 | | .02 | | 31 |
| MEAN | .03 | .04 | .02 | 2.5 | 2.0 | 13.4 | .5 | .1 | 0 | 1.3 | 1.0 | .4 | MEAN |
| MAX. | .4 | 1.4 | .3 | 59.5 | 21.0 | 143.8 | 1.7 | .7 | .3 | 2.4 | 1.8 | 5.8 | MAX. |
| MIN. | .2 | .3 | 0 | .1 | .3 | .7 | .1 | .1 | 0 | .1 | 0 | 0 | MIN. |
| ACFT | 17.0 | 27.3 | 14.6 | 152.7 | 121.0 | 826.5 | 33.1 | 16.2 | 1.6 | 77.6 | 64.5 | 23.0 | ACFT |

WATERMASTER YEAR SUMMARY

| MEAN DISCHARGE | MAXIMUM | | | | | MINIMUM | | | | | TOTAL ACRE-Feet |
|----------------|-----------|---------|----|-----|------|-----------|---------|----|-----|------|-----------------|
| | DISCHARGE | GAGE HT | NO | DAY | TIME | DISCHARGE | GAGE HT | NO | DAY | TIME | |
| 1.86 | 652.91 | 3.95 | 10 | 24 | 1219 | 0 | 0 | 9 | 28 | 1204 | 1375.10 |

APPENDIX A (continued)

| STATION: RUBIO DRAIN | | | | | | | | | | | | | |
|--|------|------|-------|------|------|-------|------|------|------|-------------|------------------|------|------|
| MEAN DAILY DISCHARGE in second-feet | | | | | | | | | | | | | |
| | | | | | | | | | | STATION NO. | WATERMASTER YEAR | | |
| | | | | | | | | | | 75220 | 1971-72 | | |
| DAY | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | DAY |
| 1 | .06 | .04 | .05 | .05 | .05 | .01 | .02 | .07 | .05 | .05 | .05 | .06 | 1 |
| 2 | .05 | .05 | .04 | .06 | .06 | .08 | .03 | .06 | .06 | .03 | .05 | .05 | 2 |
| 3 | .04 | .07 | .07 | .05 | .06 | .06 | .03 | .05 | .04 | .04 | .05 | .05 | 3 |
| 4 | .05 | .07 | .07 | .06 | .05 | .04 | .06 | .04 | .04 | .04 | .05 | .05 | 4 |
| 5 | .07 | .07 | .07 | .05 | .05 | .01 | .05 | .06 | .04 | .05 | .04 | .05 | 5 |
| 6 | .06 | .07 | .05 | .07 | .06 | .02 | .06 | .05 | .04 | .05 | .05 | .05 | 6 |
| 7 | .06 | .06 | .05 | .07 | .06 | .05 | .05 | .05 | .03 | .04 | .04 | .09 | 7 |
| 8 | .06 | .07 | .06 | .07 | .06 | .03 | .05 | .06 | .04 | .05 | .05 | .08 | 8 |
| 9 | .04 | .05 | .05 | .08 | .05 | .02 | .05 | .05 | .04 | .04 | .07 | .05 | 9 |
| 10 | .04 | .06 | .06 | .07 | .06 | .05 | .06 | .05 | .04 | .05 | .09 | .04 | 10 |
| 11 | .05 | .06 | .06 | .07 | .06 | .07 | .06 | .05 | .04 | .05 | .10 | .04 | 11 |
| 12 | .05 | .06 | .05 | .06 | .17 | .06 | .05 | .06 | .04 | .05 | .10 | .04 | 12 |
| 13 | .06 | .05 | .06 | .06 | .05 | .07 | .06 | .05 | .04 | .04 | .10 | .04 | 13 |
| 14 | .05 | .06 | .07 | .06 | .05 | .06 | .06 | .05 | .04 | .05 | .09 | .04 | 14 |
| 15 | .05 | .08 | .06 | .07 | .05 | .06 | .06 | .05 | .04 | .05 | .11 | .04 | 15 |
| 16 | .05 | .06 | .05 | .10 | .05 | .07 | .05 | .05 | .04 | .04 | .08 | .06 | 16 |
| 17 | .06 | .06 | .05 | .05 | .05 | .08 | .05 | .05 | .04 | .04 | .08 | .06 | 17 |
| 18 | .04 | .06 | .05 | .05 | .05 | .08 | .05 | .05 | .04 | .05 | .08 | .05 | 18 |
| 19 | .05 | .06 | .05 | .05 | .05 | .07 | .05 | .05 | .03 | .09 | .08 | .05 | 19 |
| 20 | .05 | .05 | .05 | .05 | .04 | .07 | .05 | .05 | .04 | .04 | .04 | .06 | 20 |
| 21 | .04 | .04 | .08 | .05 | .04 | .06 | .05 | .04 | .04 | .04 | .04 | .06 | 21 |
| 22 | .03 | .04 | .08 | .05 | .04 | .31 | .05 | .05 | .05 | .05 | .04 | .07 | 22 |
| 23 | .04 | .04 | .06 | .05 | .04 | .06 | .05 | .05 | .05 | .04 | .05 | .05 | 23 |
| 24 | .03 | .03 | .06 | .10 | .05 | .65 | .06 | .05 | .04 | .05 | .04 | .06 | 24 |
| 25 | .03 | .04 | .07 | .06 | .03 | .34 | .07 | .05 | .05 | .05 | .04 | .05 | 25 |
| 26 | .04 | .03 | .06 | .06 | .02 | .11 | .08 | .05 | .04 | .05 | .05 | .06 | 26 |
| 27 | .04 | .03 | .05 | .06 | .02 | .39 | .06 | .06 | .04 | .06 | .05 | .06 | 27 |
| 28 | .04 | .03 | .06 | .05 | .01 | .18 | .06 | .06 | .04 | .05 | .05 | .06 | 28 |
| 29 | .04 | .05 | .05 | .04 | .02 | .04 | .07 | .06 | .04 | .05 | .05 | .06 | 29 |
| 30 | .04 | .03 | .05 | .05 | .01 | .03 | .05 | | .04 | .05 | .05 | .06 | 30 |
| 31 | .05 | .04 | | .04 | | .03 | .06 | | .04 | | .05 | | 31 |
| MEAN | 1.0 | 1.1 | 1.3 | 1.6 | 1.6 | 12.8 | 1.2 | 1.1 | .9 | 1.4 | 1.4 | 1.4 | MEAN |
| MAX. | 1.6 | 1.6 | 1.8 | 6.6 | 20.8 | 158.6 | 1.8 | 1.5 | 1.3 | 11.7 | 2.8 | 8.9 | MAX. |
| MIN. | .7 | .6 | 1.0 | .4 | .1 | .1 | .4 | .9 | .7 | .7 | .8 | .8 | MIN. |
| ACFT | 63.0 | 68.4 | 77.4 | 97.1 | 96.6 | 788.2 | 72.3 | 65.5 | 54.1 | 80.3 | 84.7 | 85.0 | ACFT |

WATERMASTER YEAR SUMMARY

| MEAN | MAXIMUM | | | | | MINIMUM | | | | | TOTAL |
|-----------|-----------|---------|----|-----|------|-----------|---------|----|-----|------|-----------|
| DISCHARGE | DISCHARGE | GAGE HT | MO | DAY | TIME | DISCHARGE | GAGE HT | MO | DAY | TIME | ACRE-FEET |
| 2.23 | 703.15 | 1.82 | 12 | 24 | 1221 | 0 | 0 | 8 | 21 | 752 | 1632.60 |

| STATION: SECO DRAIN | | | | | | | | | | | | | |
|--|------|------|-------|------|-------|-------|------|------|------|-------------|------------------|------|------|
| MEAN DAILY DISCHARGE in second-feet | | | | | | | | | | | | | |
| | | | | | | | | | | STATION NO. | WATERMASTER YEAR | | |
| | | | | | | | | | | 62150 | 1971-72 | | |
| DAY | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | DAY |
| 1 | .01 | .02 | .07 | .05 | .11 | .10 | .07 | .06 | .03 | .02 | .03 | .03 | 1 |
| 2 | .02 | .04 | .06 | .06 | .11 | .09 | .07 | .04 | .03 | .03 | .02 | .03 | 2 |
| 3 | .01 | .05 | .04 | .05 | .11 | .00 | .06 | .03 | .03 | .04 | .01 | .02 | 3 |
| 4 | .00 | .05 | .04 | .05 | .11 | .00 | .04 | .01 | .03 | .05 | .01 | .03 | 4 |
| 5 | .00 | .05 | .07 | .05 | .11 | .02 | .04 | .02 | .05 | .05 | .01 | .04 | 5 |
| 6 | .01 | .05 | .06 | .02 | .11 | .02 | .04 | .02 | .04 | .05 | .01 | .04 | 6 |
| 7 | .01 | .06 | .06 | .02 | .11 | .02 | .04 | .02 | .04 | .05 | .01 | .04 | 7 |
| 8 | .01 | .06 | .06 | .01 | .10 | .02 | .04 | .03 | .05 | .05 | .01 | .03 | 8 |
| 9 | .02 | .06 | .06 | .02 | .10 | .02 | .05 | .02 | .06 | .05 | .01 | .02 | 9 |
| 10 | .03 | .06 | .06 | .02 | .10 | .02 | .06 | .01 | .04 | .05 | .02 | .03 | 10 |
| 11 | .02 | .06 | .06 | .02 | .10 | .02 | .06 | .01 | .03 | .05 | .01 | .03 | 11 |
| 12 | .03 | .05 | .06 | .02 | .10 | .02 | .06 | .01 | .03 | .04 | .01 | .02 | 12 |
| 13 | .04 | .05 | .06 | .02 | .16 | .02 | .06 | .01 | .02 | .04 | .02 | .02 | 13 |
| 14 | .04 | .05 | .06 | .03 | .16 | .02 | .07 | .01 | .03 | .04 | .02 | .02 | 14 |
| 15 | .04 | .05 | .06 | .03 | .16 | .02 | .07 | .01 | .03 | .03 | .02 | .03 | 15 |
| 16 | .03 | .05 | .06 | .04 | .16 | .02 | .05 | .02 | .05 | .03 | .03 | .03 | 16 |
| 17 | .03 | .05 | .06 | .03 | .16 | .02 | .05 | .01 | .06 | .03 | .03 | .03 | 17 |
| 18 | .02 | .05 | .06 | .05 | .16 | .02 | .06 | .01 | .04 | .04 | .02 | .03 | 18 |
| 19 | .01 | .05 | .06 | .05 | .16 | .02 | .06 | .01 | .04 | .06 | .01 | .04 | 19 |
| 20 | .02 | .05 | .06 | .05 | .16 | .02 | .05 | .01 | .04 | .04 | .01 | .04 | 20 |
| 21 | .03 | .05 | .06 | .05 | .14 | .02 | .05 | .02 | .04 | .05 | .01 | .04 | 21 |
| 22 | .03 | .06 | .05 | .05 | .16 | .21 | .05 | .02 | .03 | .05 | .02 | .04 | 22 |
| 23 | .04 | .05 | .05 | .05 | .16 | .06 | .05 | .03 | .03 | .05 | .02 | .03 | 23 |
| 24 | .04 | .05 | .05 | .13 | .16 | .43 | .05 | .03 | .03 | .05 | .02 | .03 | 24 |
| 25 | .05 | .06 | .05 | .13 | .16 | .16 | .05 | .01 | .03 | .04 | .03 | .02 | 25 |
| 26 | .05 | .07 | .05 | .12 | .16 | .07 | .05 | .01 | .03 | .04 | .02 | .03 | 26 |
| 27 | .04 | .07 | .05 | .12 | .16 | .32 | .05 | .02 | .03 | .05 | .02 | .02 | 27 |
| 28 | .03 | .06 | .05 | .11 | .16 | .17 | .05 | .03 | .03 | .05 | .02 | .02 | 28 |
| 29 | .03 | .06 | .05 | .12 | .16 | .10 | .05 | .03 | .02 | .05 | .02 | .03 | 29 |
| 30 | .03 | .08 | .05 | .12 | .15 | .08 | .05 | | .02 | .05 | .03 | .02 | 30 |
| 31 | .03 | .06 | | .11 | | .08 | .05 | | .02 | | .04 | | 31 |
| MEAN | .4 | .8 | 1.0 | 1.3 | 4.8 | 3.8 | .8 | .3 | .5 | .6 | .3 | .5 | MEAN |
| MAX. | .7 | 1.5 | 2.0 | 5.7 | 7.0 | 39.6 | 1.3 | .8 | 1.0 | 1.9 | .5 | 3.7 | MAX. |
| MIN. | 0 | .3 | .7 | .2 | 2.5 | 0 | .6 | .1 | .3 | .3 | .1 | .2 | MIN. |
| ACFT | 22.6 | 51.3 | 58.6 | 82.3 | 285.2 | 234.4 | 48.6 | 19.1 | 30.1 | 38.1 | 15.7 | 29.4 | ACFT |

WATERMASTER YEAR SUMMARY

| MEAN | MAXIMUM | | | | | MINIMUM | | | | | TOTAL |
|-----------|-----------|---------|----|-----|------|-----------|---------|----|-----|------|-----------|
| DISCHARGE | DISCHARGE | GAGE HT | MO | DAY | TIME | DISCHARGE | GAGE HT | MO | DAY | TIME | ACRE-FEET |
| 1.26 | 161.52 | 1.21 | 12 | 24 | 1221 | 0 | 0 | 7 | 3 | 24 | 915.40 |

APPENDIX A (continued)

| STATION: WEST ALTADENA | | | | | | | | | | | | | STATION NO. | WATERMASTER YEAR |
|--|------|------|-------|------|------|------|------|------|------|---------|------|------|-------------|------------------|
| MEAN DAILY DISCHARGE in second-feet | | | | | | | | | | | | | A2985 | 1971-72 |
| DAY | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. | JAN. | FEB. | MAR. | APR. | MAY | JUNE | DAY | DAY |
| 1 | .01 | .01 | .01 | .01 | .00 | .01 | .01 | .02 | .00 | .04 | .02 | .01 | 1 | 1 |
| 2 | .05 | .02 | .01 | .01 | .06 | .03 | .01 | .01 | .00 | .03 | .02 | .02 | 2 | 2 |
| 3 | .02 | .05 | .01 | .02 | .00 | .02 | .01 | .00 | .01 | .03 | .02 | .03 | 3 | 3 |
| 4 | .02 | .04 | .01 | .02 | .00 | .01 | .04 | .00 | .01 | .04 | .02 | .02 | 4 | 4 |
| 5 | .02 | .05 | .01 | .02 | .00 | .00 | .02 | .01 | .01 | .04 | .02 | .03 | 5 | 5 |
| 6 | .01 | .05 | .01 | .02 | .00 | .00 | .03 | .00 | .01 | .04 | .03 | .02 | 6 | 6 |
| 7 | .01 | .04 | .01 | .03 | .00 | .00 | .03 | .00 | .01 | .04 | .04 | .03 | 7 | 7 |
| 8 | .00 | .04 | .01 | .01 | .00 | .00 | .01 | .00 | .01 | .02 | .03 | .03 | 8 | 8 |
| 9 | .00 | .03 | .01 | .02 | .00 | .00 | .02 | .00 | .00 | .00 | .02 | .02 | 9 | 9 |
| 10 | .01 | .04 | .01 | .02 | .00 | .00 | .02 | .00 | .00 | NO FLOW | .01 | .01 | 10 | 10 |
| 11 | .01 | .04 | .01 | .02 | .02 | .00 | .02 | .01 | .01 | .00 | .02 | .01 | 11 | 11 |
| 12 | .00 | .04 | .01 | .05 | .01 | .00 | .03 | .00 | .01 | NO FLOW | .02 | .01 | 12 | 12 |
| 13 | .01 | .04 | .01 | .01 | .00 | .02 | .04 | .00 | .01 | NO FLOW | .02 | .01 | 13 | 13 |
| 14 | .04 | .03 | .02 | .04 | .00 | .00 | .03 | .00 | .00 | .00 | .02 | .02 | 14 | 14 |
| 15 | .05 | .04 | .02 | .03 | .00 | .00 | .04 | .00 | .01 | .01 | .02 | .01 | 15 | 15 |
| 16 | .05 | .02 | .01 | .02 | .00 | .00 | .05 | .00 | .01 | .00 | .02 | .01 | 16 | 16 |
| 17 | .04 | .02 | .01 | .03 | .00 | .00 | .04 | .00 | .02 | NO FLOW | .01 | .01 | 17 | 17 |
| 18 | .05 | .02 | .01 | .02 | .00 | .00 | .04 | .00 | .02 | .02 | .01 | .02 | 18 | 18 |
| 19 | .04 | .01 | .00 | .02 | .02 | .00 | .03 | .00 | .02 | .02 | .03 | .03 | 19 | 19 |
| 20 | .04 | .03 | .00 | .02 | .00 | .00 | .04 | .00 | .01 | .01 | .01 | .05 | 20 | 20 |
| 21 | .05 | .03 | .01 | .02 | .00 | .02 | .03 | .00 | .01 | .01 | .01 | .05 | 21 | 21 |
| 22 | .02 | .03 | .00 | .02 | .00 | .14 | .03 | .00 | .02 | .01 | .01 | .04 | 22 | 22 |
| 23 | .00 | .03 | .01 | .02 | .00 | .03 | .05 | .00 | .01 | .00 | .01 | .02 | 23 | 23 |
| 24 | .01 | .02 | .01 | .08 | .00 | .34 | .05 | .00 | .02 | .01 | .01 | .03 | 24 | 24 |
| 25 | .00 | .03 | .00 | .01 | .00 | .14 | .04 | .00 | .01 | NO FLOW | .01 | .01 | 25 | 25 |
| 26 | .01 | .02 | .01 | .01 | .00 | .03 | .02 | .00 | .02 | .01 | .02 | .01 | 26 | 26 |
| 27 | .02 | .03 | .01 | .01 | .00 | .20 | .01 | .00 | .03 | .01 | .03 | .03 | 27 | 27 |
| 28 | .02 | .02 | .00 | .02 | .00 | .04 | .04 | .00 | .01 | .01 | .02 | .04 | 28 | 28 |
| 29 | .02 | .03 | .01 | .00 | .01 | .04 | .04 | .00 | .00 | .01 | .03 | .03 | 29 | 29 |
| 30 | .05 | .03 | .01 | .00 | .00 | .02 | .03 | | .03 | .01 | .02 | .02 | 30 | 30 |
| 31 | .01 | .02 | | .01 | | .01 | .04 | | .03 | | .02 | | 31 | 31 |
| MEAN | .4 | .5 | .1 | .4 | .1 | 1.6 | .5 | 0 | .2 | .2 | .3 | .4 | MEAN | |
| MAX. | .8 | .9 | .3 | 4.2 | 1.1 | 17.8 | .8 | .2 | .5 | .6 | .6 | .8 | MAX. | |
| MIN. | 0 | .2 | 0 | | 0 | 0 | .1 | 0 | 0 | 0 | .1 | .1 | MIN. | |
| ACFT | 21.4 | 29.7 | 4.5 | 24.5 | 7.0 | 96.0 | 24.8 | 2.1 | 11.5 | 13.3 | 17.9 | 21.4 | ACFT | |

WATERMASTER YEAR SUMMARY

| MEAN | MAXIMUM | | | | | MINIMUM | | | | | TOTAL |
|-----------|-----------|---------|----|-----|------|-----------|---------|----|-----|------|-----------|
| DISCHARGE | DISCHARGE | GAGE HT | MO | DAY | TIME | DISCHARGE | GAGE HT | MO | DAY | TIME | ACRE-Feet |
| .34 | 42.26 | 1.04 | 12 | 24 | 1200 | 0 | 0 | 7 | 1 | 0 | 282.50 |

APPENDIX B

**GROUND WATER EXTRACTION DATA
FOR INDIVIDUAL WELLS**

APPENDIX B: GROUND WATER EXTRACTION DATA FOR INDIVIDUAL WELLS - In acre-feet

| STATE WELL NUMBER | OWNER'S DESIGN- NATION | PRODUCTION | | | | | | | | | | | | TOTAL |
|-------------------------|------------------------------|------------|-----|------|-----|-----|-----|------|-----|-----|-----|-----|------|-------|
| | | 1971 | | | | | | 1972 | | | | | | |
| | | JULY | AUG | SEPT | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUNE | |

| WESTERN UNIT (MONK HILL BASIN) | | | | | | | | | | | | | | |
|----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| LA CANADA IRRIGATION DISTRICT | | | | | | | | | | | | | | |
| IN/12W-06M055 | MAYN1 | 0 | 4.80 | 6.36 | 1.75 | 0 | 0 | 0 | .72 | 0 | .36 | 1.25 | 0 | 15.24 |
| IN/12W-01J015 | MAYN4 | 0 | 0 | .17 | 0 | 0 | 0 | 0 | .50 | 0 | 0 | 0 | 0 | .67 |
| TOTALS | | 0 | 4.80 | 6.53 | 1.75 | 0 | 0 | 0 | 1.22 | 0 | .36 | 1.25 | 0 | 15.91 |
| LAS FLORES WATER COMPANY | | | | | | | | | | | | | | |
| IN/12W-08M025 | 2 | 24.12 | 17.01 | 32.74 | 30.24 | 23.19 | 14.69 | 20.54 | 24.61 | 20.73 | 2.41 | 9.95 | 56.96 | 277.19 |
| LINCOLN AVENUE WATER COMPANY | | | | | | | | | | | | | | |
| IN/12W-05M015 | 3 | 86.50 | 66.85 | 59.75 | 34.82 | 54.97 | 44.80 | 9.33 | 6.80 | 13.29 | 8.34 | 15.01 | 11.83 | 412.09 |
| IN/12W-05M025 | 2 | 12.51* | 18.81 | 9.26 | 7.70 | 10.58 | 1.20 | .65 | 1.12 | .60 | .62 | .47 | 1.85 | 65.37 |
| IN/12W-05U025 | 5 | 0 | 0 | 0 | 64.94 | 46.64 | 37.76 | 5.98 | .96 | 8.30 | 12.64 | 2.61 | 8.82 | 193.65 |
| TOTALS | | 99.01 | 85.66 | 69.01 | 112.46 | 112.19 | 83.76 | 15.96 | 8.88 | 22.19 | 21.60 | 18.09 | 22.50 | 671.11 |
| PASADENA CEMETERY ASSOCIATION | | | | | | | | | | | | | | |
| IN/12W-05G015 | 4 | 4.76 | 3.65 | 3.69 | 2.13 | 1.10 | .53 | .47 | .90 | 1.49 | 1.43 | 2.21 | 2.39 | 24.75 |
| IN/12W-09E015 | 2-3 | 10.38 | 9.45 | 10.81 | 7.82 | 2.21 | .43 | 0 | 3.15 | 7.60 | 5.72 | 10.65 | 12.08 | 80.30 |
| TOTALS | | 15.14 | 13.10 | 14.50 | 9.95 | 3.31 | .96 | .47 | 4.05 | 9.09 | 7.15 | 12.86 | 14.47 | 105.05 |
| PASADENA CITY OF | | | | | | | | | | | | | | |
| IN/12W-05M015 | ARROY | 317.93 | 311.15 | 291.12 | 256.52 | 0 | 196.39 | 0 | 235.11 | 323.61 | 291.46 | 307.37 | 278.39 | 2809.05 |
| IN/12W-05M015 | VENTU | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 67.94 | 92.86 | 33.38 | 194.23 |
| IN/12W-08M025 | WINDSP | 115.63 | 120.40 | 111.09 | 85.78 | 123.17 | 104.01 | 121.34 | 116.48 | 57.23 | 111.52 | 112.95 | 96.45 | 1282.54 |
| TOTALS | | 433.56 | 432.05 | 402.20 | 342.30 | 123.17 | 304.40 | 121.34 | 353.59 | 380.84 | 470.97 | 513.18 | 408.22 | 4285.82 |
| RUBIO CANYON LAND AND WATER ASSN | | | | | | | | | | | | | | |
| IN/12W-09M015 | 5 | 138.91 | 178.44 | 147.46 | 114.29 | 70.13 | 68.03 | 3.73 | 10.25 | 23.09 | 80.71 | 10.70 | 2.32 | 848.10 |
| IN/12W-08M035 | 4 | 0 | 0 | 10.88 | 0 | 0 | .63 | 23.35 | 0 | 66.91 | 11.46 | 0 | 0 | 113.23 |
| IN/12W-09M015 | 6 | 10.73 | 9.32 | 7.87 | 1.12 | 13.06 | 0 | 11.20 | .85 | 15.81 | 0 | 18.52 | 0 | 88.44 |
| IN/12W-09M015 | 2 | 12.46 | 15.48 | 12.53 | 16.56 | 0 | 11.48 | 0 | 12.74 | 0 | 17.35 | .85 | 18.84 | 118.29 |
| TOTALS | | 162.10 | 203.28 | 178.70 | 131.97 | 83.19 | 80.14 | 38.28 | 23.84 | 105.81 | 109.52 | 30.07 | 21.16 | 1168.06 |
| VALLEY WATER COMPANY | | | | | | | | | | | | | | |
| IN/12W-06M015 | 3 | .62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .62 |
| IN/12W-06M045 | 2 | 100.28 | 85.13 | 64.79 | 62.90 | 25.26 | 26.60 | 32.44 | 3.03 | 7.35 | 25.39 | 9.97 | 19.50 | 462.64 |
| IN/12W-06M065 | 1 | 0 | 27.66 | 74.88 | 21.24 | 22.03 | 1.09 | 12.42 | 48.84 | 5.17 | 0 | 28.25 | 21.43 | 262.81 |
| IN/12W-06M095 | 4 | 23.57 | 57.03 | 4.88 | 0 | 11.35 | .14 | 6.61 | 25.56 | 4.69 | 0 | 13.63 | 11.42 | 158.88 |
| TOTALS | | 124.47 | 164.82 | 144.55 | 84.14 | 58.64 | 27.83 | 51.47 | 77.23 | 17.21 | 25.39 | 51.85 | 52.35 | 884.95 |

| (PASADENA SUBAREA) | | | | | | | | | | | | | | |
|------------------------------|-------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|---------|
| ALHAMBRA CITY OF | | | | | | | | | | | | | | |
| IN/12W-34E015 | 2 | 86.32 | 89.30 | 82.84 | 78.58 | 72.63 | 72.55 | 69.31 | 43.72 | 48.20 | 0 | 42.87 | 75.15 | 761.47 |
| IN/12W-34E045 | 6 | 14.85 | 14.98 | 6.31 | 0 | 0 | 0 | 0 | 20.43 | 16.92 | 30.64 | 19.70 | 11.83 | 140.66 |
| TOTALS | | 101.17 | 104.28 | 89.15 | 78.58 | 72.63 | 72.55 | 69.31 | 64.15 | 65.12 | 30.64 | 62.57 | 86.98 | 902.13 |
| ARCADIA CITY OF | | | | | | | | | | | | | | |
| IN/11W-29M015 | WCHRA | 0 | .02 | 0 | 0 | 0 | .11 | .10 | .03 | .01 | 0 | 0 | 0 | .27 |
| IN/11W-30M015 | RCMOA | 94.48 | 12.09 | .23 | 30.00 | 6.51 | .18 | .26 | .20 | .18 | .15 | 65.20 | 28.78 | 238.26 |
| IN/11W-30M035 | WPEID | 16.78 | 189.94 | 185.10 | 132.21 | .41 | .48 | .62 | .32 | .39 | 91.78 | 156.97 | 166.30 | 941.30 |
| TOTALS | | 111.26 | 202.05 | 185.33 | 162.21 | 6.92 | .77 | .98 | .55 | .58 | 91.93 | 222.17 | 195.08 | 1179.83 |
| CALIFORNIA-AMERICAN WATER CO | | | | | | | | | | | | | | |
| IN/12W-25E015 | 1921A | 38.80 | 65.19 | 55.39 | 47.78 | 20.79 | 2.50 | 8.49 | 10.52 | 25.57 | 31.93 | 30.46 | 37.98 | 375.40 |
| IN/12W-26A015 | 1928 | 69.08 | 48.84 | 18.71 | 27.22 | 2.29 | .55 | 2.79 | 7.26 | 2.97 | 4.04 | 6.21 | 5.87 | 195.85 |
| IN/12W-26R015 | 1924 | 55.44 | 67.71 | 47.17 | 50.93 | 33.67 | 7.11 | 14.64 | 27.45 | 48.00 | 46.65 | 43.77 | 38.23 | 480.97 |
| IN/12W-34C015 | 1923 | 27.65 | 16.85 | 17.16 | 18.94 | 14.32 | 4.69 | 6.57 | 16.83 | 20.76 | 12.93 | 19.84 | 15.14 | 191.68 |
| IN/12W-34E025 | 1921A | 48.17 | 48.73 | 28.99 | 17.74 | .76 | 4.99 | .50 | .45 | 6.98 | 17.87 | 17.23 | 26.80 | 219.21 |
| IN/12W-35R015 | 1917 | 115.99 | 117.53 | 110.06 | 109.12 | 90.57 | 21.71 | 86.28 | 106.49 | 92.10 | 61.16 | 56.95* | 58.11* | 1026.07 |
| TOTALS | | 355.13 | 364.85 | 277.48 | 271.73 | 162.40 | 41.55 | 119.47 | 169.02 | 196.38 | 174.58 | 174.46 | 182.13 | 2489.18 |
| CANYON MUTUAL WATER COMPANY | | | | | | | | | | | | | | |
| IN/12W-13K015 | WILCK | 4.11 | 10.24 | 6.24 | 5.22 | 3.86 | .71 | 1.70 | .32 | 0 | 1.64 | 1.12 | 2.72 | 37.88 |

APPENDIX B: (Continued)

| STATE WELL NUMBER | OWNERS DESIG- NATION | PRODUCTION | | | | | | | | | | | | TOTAL |
|-------------------------------------|----------------------------|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| | | 1971 | | | | | | 1972 | | | | | | |
| | | JULY | AUG | SEPT | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUNE | |
| EAST PASADENA WATER COMPANY | | | | | | | | | | | | | | |
| 1N/11W-30J015 | 7 | 33.10 | 33.20 | 19.84 | 14.54 | .19 | .14 | 2.24 | 3.46 | 4.69 | 12.26 | 19.92 | 18.75 | 162.33 |
| 1N/11W-30K015 | 4 | 42.22 | 42.64 | 29.21 | 34.96 | 8.41 | 2.49 | 3.90 | 9.78 | 14.75 | 22.46 | 25.06 | 21.94 | 259.82 |
| 1N/11W-30O035 | 1 | 1.21 | 3.65 | 1.45 | .04 | .05 | .07 | 0 | .04 | .06 | .04 | .71 | .24 | 7.56 |
| TOTALS | | 76.53 | 79.49 | 50.50 | 49.54 | 8.65 | 2.70 | 6.14 | 13.28 | 19.50 | 34.76 | 45.69 | 42.93 | 429.71 |
| H E HUNTINGTON LIMPAWY AND ART GALL | | | | | | | | | | | | | | |
| 1N/12W-34H015 | CANYN | 5.46 | 3.51 | 1.48 | 1.88 | 2.76 | 1.55 | 2.10 | 0 | 2.66 | 2.16 | 2.36 | 2.42 | 28.34 |
| 1N/12W-35C015 | ORLOO | 53.89 | 73.42 | 24.52 | 30.19 | 11.18 | 2.54 | 4.03 | 9.17 | 27.76 | 34.24 | 50.06 | 37.50 | 358.50 |
| TOTALS | | 59.35 | 76.93 | 26.00 | 32.07 | 13.94 | 4.09 | 6.13 | 9.17 | 30.42 | 36.40 | 52.42 | 39.92 | 386.84 |
| KINNELOA IRRIGATION DISTRICT | | | | | | | | | | | | | | |
| 1N/12W-13E035 | 3 | 19.60 | 24.31 | 21.63 | 15.89 | 8.64 | 1.71 | .85 | 4.04 | 8.77 | 11.68 | 14.24 | 14.63 | 146.04 |
| 1N/12W-13L015 | WGNEN | .26 | .37 | .19 | .16 | .08 | .07 | .03 | .13 | .20 | .21 | .19 | .11 | 2.00 |
| TOTALS | | 19.86 | 24.68 | 21.82 | 16.05 | 8.72 | 1.78 | .88 | 4.17 | 8.97 | 11.89 | 14.43 | 14.74 | 148.04 |
| MIHA LOMA MUTUAL WATER COMPANY | | | | | | | | | | | | | | |
| 1N/11W-07N015 | GLEW | 6.00 | 3.83 | 3.88 | 3.38 | .97 | 0 | .30 | 2.00 | 2.64 | 4.28 | 4.83 | 4.85 | 36.96 |
| 1N/11W-07N025 | BROWN | 8.28 | 5.46 | 4.37 | 3.06 | 1.26 | 0 | 0 | .10 | 2.01 | 1.37 | 3.14 | 3.30 | 32.35 |
| 1N/11W-18C015 | SHAW | 0 | 1.02 | 1.81 | 1.14 | 1.27 | .75 | 0 | 1.77 | 1.96 | 1.47 | 1.81 | 1.46 | 14.46 |
| TOTALS | | 14.28 | 10.31 | 10.06 | 7.58 | 3.50 | .75 | .30 | 3.87 | 6.61 | 7.12 | 9.78 | 9.61 | 83.77 |
| MUNDOVIA, CITY OF | | | | | | | | | | | | | | |
| 1N/11W-30H015 | CHAPA | 111.03 | 110.42 | 107.87 | 53.55 | 7.52 | 9.57 | 7.62 | 7.46 | 15.12 | 37.78 | 104.84 | 108.53 | 681.31 |
| OSBORN CONSTRUCTIONS | | | | | | | | | | | | | | |
| 1N/12W-13H015 | FARPT | 3.86 | 4.17 | 3.35 | 3.25 | 1.45 | 1.07 | 1.12 | 1.65 | 2.31 | 3.29 | 2.50 | 2.61 | 30.83 |
| PASADENA, CITY OF | | | | | | | | | | | | | | |
| 1N/11W-30D045 | NCHAP | 142.33 | 248.44 | 240.03 | 262.08 | 240.03 | 252.96 | 251.38 | 109.97 | 0 | 0 | 0 | 139.48 | 1886.70 |
| 1N/12W-20A015 | SUNST | 171.97 | 167.50 | 133.66 | 127.57 | 123.84 | 0 | 0 | 0 | 0 | 0 | 0 | 11.47 | 736.01 |
| 1N/12W-20R015 | CDPO3 | 56.09 | 195.75 | 152.65 | 58.74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6.73 | 469.96 |
| 1N/12W-21K015 | GARFI | 118.69 | 201.85 | 121.66 | 31.69 | 57.77 | 0 | 78.60 | 15.43 | 2.57 | 0 | 0 | 90.40 | 718.66 |
| 1N/12W-21K025 | VILLA | 216.26 | 315.91 | 277.57 | 142.36 | 253.24 | 68.83 | 264.00 | 161.89 | 26.44 | 0 | 102.42 | 215.61 | 2013.63 |
| 1N/12W-23G015 | CRAIG | 0 | 0 | 0 | 0 | 0 | 178.85 | 165.17 | 97.16 | 25.74 | 0 | 0 | 116.18 | 533.04 |
| 1N/12W-25R015 | JODAN | 245.06 | 291.44 | 267.15 | 120.93 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40.07 | 1014.65 |
| 1N/12W-26C015 | WDBPY | 208.82 | 261.87 | 164.94 | 89.27 | 169.27 | 99.52 | 130.50 | 101.93 | 3.64 | 41.17 | 63.83 | 0 | 1338.96 |
| 1N/12W-33G025 | OMJOS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9.43 | 8.84 | 0 | 0 | 18.27 |
| TOTALS | | 1229.22 | 1681.06 | 1312.66 | 832.64 | 844.15 | 560.16 | 889.65 | 476.32 | 67.82 | 50.01 | 166.25 | 619.94 | 8729.88 |
| ROYAL LAUNDRY AND DRY CLEANING CO | | | | | | | | | | | | | | |
| 1N/12W-28H015 | SWELL | 12.11 | 12.82 | 12.63 | 12.33 | 12.32 | 13.56 | 1.00 | 25.24 | 14.54 | 13.08 | 13.50 | 15.01 | 158.24 |
| SAN GABRIEL COUNTY WATER DISTRICT | | | | | | | | | | | | | | |
| 1N/12W-36E015 | VH004 | 0 | 0 | 1.94 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.96 |
| 1N/12W-36F025 | VH003 | 121.85 | 110.98 | 95.64 | 103.31 | 112.00 | 113.98 | 115.43 | 4.66 | 5.96 | 71.21 | 124.78 | 87.95 | 1070.75 |
| TOTALS | | 121.85 | 110.98 | 100.60 | 103.31 | 112.00 | 113.98 | 115.43 | 4.66 | 5.96 | 71.21 | 124.78 | 87.95 | 1072.71 |
| SUNNY SLOPE WATER COMPANY | | | | | | | | | | | | | | |
| 1N/12W-36A015 | 6 | 59.65 | 130.73 | 36.44 | .92 | .24 | 1.34 | .39 | .74 | 0 | 0 | 6.92 | 73.47 | 310.88 |
| 1N/12W-36H015 | 1 | 71.43 | 73.40 | 63.64 | 53.11 | 38.63 | 1.35 | .12 | 16.04 | 31.16 | 25.60 | .02 | .14 | 374.69 |
| 1N/12W-36H025 | 3 | 44.42 | 65.79 | 67.74 | 53.58 | 14.35 | .57 | .22 | .36 | .33 | 27.91 | 8.07 | 9.83 | 343.17 |
| TOTALS | | 225.50 | 269.92 | 167.82 | 107.61 | 53.26 | 3.26 | .73 | 17.14 | 31.49 | 53.51 | 15.01 | 83.44 | 1028.74 |
| EASTERN UNIT (SANTA ANITA SUBAREA) | | | | | | | | | | | | | | |
| ARCADIA, CITY OF | | | | | | | | | | | | | | |
| 1N/11W-21G025 | OG01A | 220.06 | 207.95 | 194.14 | 192.10 | 138.01 | .48 | .70 | 2.04 | 0 | 46.73 | 213.07 | 70.09 | 1285.46 |
| 1N/11W-21G055 | OG005 | 125.41 | 118.33 | 93.19 | .12 | 46.20 | .33 | .43 | .22 | .26 | 33.64 | 102.06 | 7.65 | 527.84 |
| 1N/11W-21H025 | OG02A | 205.91 | 197.72 | 178.40 | 176.88 | 161.04 | .35 | .76 | 1.78 | 5.84 | 85.21 | 173.35 | 39.33 | 1226.57 |
| 1N/11W-21H035 | OG006 | 103.81 | 66.02 | 19.71 | 78.49 | 50.07 | .22 | .48 | .23 | .25 | .24 | 70.85 | 5.02 | 395.39 |
| TOTALS | | 655.19 | 590.02 | 485.48 | 447.59 | 345.32 | 1.38 | 2.37 | 4.32 | 6.35 | 165.82 | 559.33 | 122.09 | 3435.26 |
| SIERRA MADRE, CITY OF | | | | | | | | | | | | | | |
| 1N/11W-21C025 | 4 | 0 | 28.80 | 103.56 | 0 | 71.36 | 0 | 0 | 0 | 103.32 | 0 | 71.56 | 89.35 | 467.95 |
| 1N/11W-21C035 | 3 | 168.75 | 127.20 | 12.95 | 114.46 | 22.13 | 84.14 | 4.28 | 1.94 | 65.80 | 100.40 | 40.10 | 10.90 | 760.15 |
| 1N/11W-21C065 | 5 | 125.28 | 114.63 | 134.44 | 0 | 1.76 | 0 | 82.41 | 3.62 | 0 | 102.30 | 33.16 | 9.72 | 617.34 |
| 1N/11W-21C075 | 6 | 0 | 40.39 | 5.79 | 82.31 | 29.92 | 0 | 0 | 125.53 | 8.84 | .51 | 96.05 | 124.06 | 513.40 |
| TOTALS | | 294.03 | 316.02 | 261.74 | 196.77 | 175.17 | 84.14 | 86.71 | 133.14 | 177.96 | 203.21 | 240.87 | 234.03 | 2358.84 |
| GRAND TOTALS | | | | | | | | | | | | | | |
| | | 4257.88 | 4843.96 | 3966.96 | 3042.84 | 2235.55 | 1425.85 | 1557.60 | 1427.98 | 1205.05 | 1624.27 | 2446.97 | 2423.37 | 30561.28 |





